

A M A T E U R R A D I O

MARCH 1963



Vol. 31, No. 3



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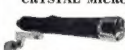
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VK3WI: Sundays, 1100 hours EST, simulta-
neously on 3073 Kc., 7146 Kc., 50.18
Mc. and 145.13 Mc.; intrastate call-backs
taken on 7050 Kc. VHF 1800 hours EST
on 50.16 Mc. and 145.13 Mc.; call-backs
taken on 2 metres.
VK3WI: Sundays, 1830 hours EST, simulta-
neously on 3603 Kc., 7146 Kc., 50.5
Mc., 144.5 Mc. (a.m.), and 145.85 Mc.
(f.m.); 2000 hours EST, 3603 Kc. and
144.5 Mc. intrastate hook-ups taken on
3603 Kc.
VK3WI: Sundays, 2000 hours EST, simulta-
neously on 7146 Kc. and 14.342 Mc.
intrastate hook-ups taken on 7146 Kc.
VK3WI: Sundays, 0900 SAT, on 7146 Kc.
Relays on 3.7, 34.2, 50.23, 144 and 288
Mc. intrastate hook-ups taken on 7123
Kc.
VK3WI: Sundays at 0930 hours WAST, on
7146 Kc. intrastate hook-ups taken on
7085 Kc.
VK3WI: Sundays at 1000 hours EST, on 7146
Kc. and 3672 Kc. intrastate hook-ups
taken on 7115 Kc.

OUR COVER

Looming high on a hill at Ballarat
(Victoria) there are a series of aerial
towers, between which are Sterba
curtains, which imply the location of
a commercial broadcaster; such is
not the case. This most impressive
array is the joint property of VK-
3HW and VK3AMH.

In a later cover photo will be
shown the equally impressive station
set-up, which would rank with any
Amateur station, irrespective of
location.

FEDERAL COMMENT

PROGRESS OF YOUTH

For many generations as the world has progressed man as the more
experienced being has taken an interest in youth, trying—and with great
success—to provide for him the opportunities which man himself missed
through circumstances either beyond his control or which he did not grasp
when opportunity presented itself.

This success is evidenced by the younger age of men holding respon-
sible positions in government, in industry, in the municipalities of large
cities, in provincial towns, in commerce, in schools and universities, in
science laboratories—in fact in every walk of life where man employs
himself in the age-long toil for existence. Such success has not just
"happened" but is the direct result of man's interest in youth, in passing
on to the younger generation the knowledge and experience he himself
has gained over a longer span of life.

As the world entered the technological era youth was first presented
with known facts then left with unsolved problems. Gradually youth met
the challenge of his forbears and took an interest in matters previously
left to the older man. Educational standards rose until today youth has
opportunities unthought of a mere few decades ago.

With the dawn of the space age greater and greater call is made upon
youth to tackle the technical problems involved in a venture so gigantic
that it is sometimes beyond the comprehension of older people. Radio,
which itself was a miracle five decades ago, is being supplanted by tech-
nological progress undreamed about when radio was in its infancy. And
yet, despite the wonder of it all, the basic concepts of radio are the
fundamentals of this great new adventure.

For youth today the study of radio and its principles is the first step
to wonders yet unknown. It is the first step to be encouraged by man in
his efforts to give to youth what he himself might have missed or only
partly entered into. Never before has such a challenge been extended to
youth as this challenge to explore the never-ending world of electronics.

In pursuit of this thinking the Wireless Institute of Australia is pro-
moting the growth of a Youth Radio Club Scheme throughout Australian
Schools. Already some thirty such clubs are in existence, bringing to youth
at a bright young age the opportunity to take that first step towards the
challenge of exploring the technical world ahead, and in so doing assist
them in science, mathematics and other subjects so important in the
technological advancement of their country.

By every means we have at our command we should support and
encourage such a scheme for the advancement of youth into the field in
which we ourselves are so interested, a field in which our sons will be the
scientists of tomorrow.

Elsewhere in this issue of your magazine is a call for those used to
unwanted pieces of radio equipment—capacitors, sockets, valves, resistors
—which will be wanted by the youths who take an interest in the Youth
Radio Clubs. From these boys will come the Amateurs, who, like hundreds
of those before them, will fill the technical posts in this young country of
Australia which is surely taking up its important role in the technological
advancement of the world.

The Institute asks you to DO your part, not just THINK about it!
Follow the instructions elsewhere in this magazine and send that unwanted
equipment to your Division so that youth can gain the early knowledge
so essential in this rapidly evolving world of electronics.

FEDERAL EXECUTIVE, W.L.A.

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Build a Multi-Band Bandspread Receiver*

USING COMMAND 3-6 Mc. SET AS BASIS

LUTHER UYS, ZS6E

AFTER 10 years of mobile work I have found that the transmitting side of it presented no difficulty whatsoever, but the receiving end has always been a "pain in the neck".

Having tried about ten different types—with converters (both commercial and home-built), I found that they all fell far short of the "shack" standard. There was no bandspread, no selectivity and no noise limiters; in short, no reception if the signal was less than "9 plus".

This inspired, or rather, forced me to build something to meet my requirements.

The Command receiver is well known for its fantastic reception; but falls short of these points:—

- (1) Single band receiver.
- (2) No bandspread.
- (3) Broad i.f.s. (Not BC453).

The following is a step-by-step procedure to overcome these and other shortcomings.

STEP-BY-STEP PROCEDURE

1. Remove: bottom and top covers; all valves; all i.f. cans; r.f./mixer/osc. unit at bottom.

2. Rewire filaments to suit and replace with 6 volt valves if required, but leave 12SR7 detector valve until later.

3. Cut away wires at back and leave only h.t. filament, and pick up r.f. gain wire, i.e. pin No. 3 on back plug, pin No. 1 on front plug and insert 10K pot. on front for r.f. gain control.

4. Pick up b.f.o. shut-off wire, i.e. pin No. 4 at back or pin No. 5 front plug, and insert switch to ground.

5. Cut away existing output transformer, i.e. T1 and replace with universal output transformer. Refer to main and sub-schematics.

This brings the main or normal modifications to an end (which most of you must have done already if your receiver is working).

The following steps are radical changes and must be followed to their logical conclusion, there will be no turning back.

6. Identify r.f./mixer/osc. sections thus: rx upright, then the antenna terminal will be at the left. From left to right you will find r.f./mixer/osc. at the bottom, each one being under its section of the main tuning condenser C4A, B and C.

Also, the r.f. coil has a red dot and will henceforth be referred to as L1; the mixer coil has a yellow dot and will be referred to as L2 and L3; and the oscillator coil has a blue dot and will be referred to as L4 and L5.

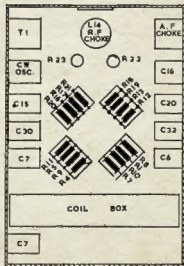
7. Make a good note of step 6, because you will be constantly referring back to it when studying these coils more closely.

● This article details, in an easy step-by-step manner, how a satisfactory mobile receiver can be made from the Command receiver having efficient bandspread, good selectivity, and effective noise limitation. Each step is carefully detailed for the constructor wishing to duplicate the author's work.

8. Remove the rx cover at the top of the unit. This will expose the r.f. (C4A), mixer (C4B), and oscillator (C4C) tuning condenser, i.e. your main tuning condenser. Observe the points of connection of the plug-in unit and count the pins clockwise.

9(a). Resolder: (a) r.f./C4A stator wire from pin 4 on to pin 5. (b) Mixer stator wire of C4B from pin 4 on to pin 5. See that the 100 pF. condenser remains in position. (c) Oscillator stator wire of C4C from pin 4 on to pin 6.

9(b). Remove: (i) The padder and trimmers (the unit as a whole) from the oscillator condenser C4C and replace with a good quality 0.01 μ F. condenser to ground. (ii) All trimmers on top of C4A and C4B, i.e. two on each section. (iii) The existing antenna lug.



Underneath the Chassis.

View of receiver, inverted, and with front panel towards you. There are several other resistors and condensers not shown in the above diagram, but they are easily identifiable by inspection.

When these steps have been completed, close up the top section and turn the receiver upside down.

Now, counting the pins anti-clockwise.

10. Remove the green wire from pin 6 of the oscillator plug to the cathode of the mixer and insert a 5K resistor from pin 1 of this plug to the cathode of the mixer.

11. Remove all the 5K resistors from the oscillator coils—both the existing one and any new ones you may have scrounged—because step 10 will have taken care of this circuit.

This completes the wiring modification to the receiver side of the r.f./mixer/osc. unit. All other modifications to these sections will now be done on the plug-in units.

At this stage we will get the i.f.s. in order that you can test as soon as you get the r.f./mixer/osc. plug-in unit going.

I.F. MODIFICATION

If the receiver you have is one with a sharp i.f.—Bob's your uncle, and nothing is required to be done. The i.f.s. should be no sharper than 455 kc.; 700 kc. will also do.

12. Obtain three 455 kc. modern high-gain i.f. cans, e.g. the types that are used on a.c./d.c. sets 11-9-D-12, using 1655-1 in the 1st i.f., 1655-1 in the 2nd i.f., and 1655-7 in the 3rd i.f. if used these and my modifications are based on them.)

13. Open the Command i.f. cans and cut the four pillars away with a hacksaw, strip the wires away from the pins and thus leave the plug-in unit free.

14. Enlarge the centre hole of the plug-in unit with a 3/16" drill, this will enable you to adjust the bottom slug of the i.f. can through the hole.

15. Now it is advisable to remove and replace all the existing 0.05 μ F. metal canned condensers that obstruct the bottoms of the i.f.s. with 0.05 μ F. paper condensers, making sure that you mount them in such a position that you can get at the bottom slug of the i.f. with a tuning stick.

16. Drill a 3/16" hole into the baseplate of the i.f. can by first plugging in the i.f. and then drilling through, as described in step 14.

17. Mount the new i.f. cans inside the stripped Command i.f. cans, making sure that:—

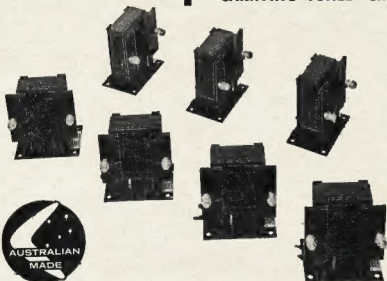
- (a) Plate pin 4 of the new i.f. is connected to pin 1 of the plug-in unit.
- (b) H.t. pin 3 of the new i.f. is connected to pin 2 of the plug-in unit.
- (c) Grid pin 1 of the new i.f. is connected to pin 5 of the plug-in unit.
- (d) A.v.c. pin 2 of the new i.f. is connected to pin 6 of the plug-in unit.

* Reprinted from "Radio ZS," September, 1962.

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21. As these coil-packs were not designed for continual plugging in and out, you must construct four little guides from aluminium, bent $1\frac{1}{2} \times 1\frac{1}{2}$ ". These are bolted to the sides of the receiver chassis to ensure proper positioning of the coil-pack.

22. The side-flaps which were originally used for bolting the coil-pack down must be modified in the following manner:—

(a) Remove the bolt-heads on both sides.

(b) Bend the points inward, making sure that the sides have a spring effect to ensure a proper earth contact for the coil-pack, as good earthing is essential.

23. Check Step 11.

24. Decide on how many bands you wish to work, which will depend on how many coil-pack units you are able to scrounge. The modification of this unit was based on five bands.

25. Study coil-pack modification schematics closely, and set to work as follows:—

26. Mount the trimmers as shown in the pictorial of the new coil, making sure you are able to get a trimming-tool through the can for trimming and lining-up the receiver at a later stage.

27. Mount coil-formers L1 to L5 between pins 6 and 1. In other words,

the coil-former is positioned slightly to one side, leaving you space for the trimmers.

28. Get the oscillator oscillating 455 kc. higher than the r.f. signal and line the receiver up in the normal way, until perfect tracking is obtained. Repeat for each band. (Refer to line-up data.)

A.V.C., A.N.L. AND EXTRA AUDIO

29. Refer to the relevant schematic. Remove C16A, B and C and replace with 0.25 μ F. paper condensers. (The 0.25 μ F. condenser C16A going to the middle of the wire-wound resistors is essential, as it is the common by-pass to all screens.) This step will take care of this. The C16B and C are not essential.

30. Mount a 6H6 valve in the space vacated by these condensers, making sure that pin 4 is the nearest to the side of the chassis. This will ensure that the plate, pin 5, will be facing pin 6 of the third i.f., in order that a 220K resistor can couple directly from pin 6 of the i.f. to the plate of the 6H6.

31. Remove the 12SR7 and replace with a 6SN7, balancing the filaments of the 6SN7 and 6H6 if 12 volt filament supply is used, making sure that the 6H6 has an extra resistor across its

filament to balance it against the heavier drain of the 6SN7. If you are using 6 volt valves exclusively, balance the 6SN7 with a 6V6 (the 6V6 valve draws 0.45 amp. and the 6SN7 0.8 amp., balance with extra 400 ohm resistor across 6V6) and the 6H6 with a resistor to ground.

Follow the schematic, which is self-explanatory. For those who may have difficulty in following it, we will continue with the step-by-step instructions.

Condensers in Series and Parallel Total Values

Band	Series Cond. in R.F.	Parallel Cond. in R.F.
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	50 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.
Band	Series Cond. in Mixer	Parallel Cond. in Mixer
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	50 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.
Band	Series Cond. in Osc.	Parallel Cond. in Osc.
80 Mx	65 pF.	30 pF.
40 Mx	30 pF.	30 pF.
20 Mx	30 pF.	30 pF.
15 Mx	30 pF.	30 pF.
10 Mx	50 pF.	30 pF.

Note.—Use 3-30 pF. Philips bee-hive trimmers fixed values as required, e.g. 80 mx.

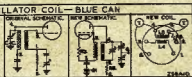
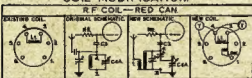
PICTORIALS OF COILS.



SCHEMATICS SHOWING SERIES & PARALLEL CONDS. IN POSITION.



COIL MODIFICATION.

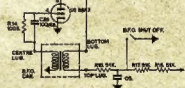


NOTE.—ALL COUNTING IS DONE ANTI-CLOCKWISE, LOOKING FROM INSIDE THE COIL. CAP. IS LOOKING AT THE PIN.

32. Remove R19 from the tag strip.

33. Remove the wire connecting pin 6 of the i.f. to R18 (510K) and replace with a longer lead from pin 6 of the i.f. to the far side of R18, i.e. facing the middle i.f.

34. Insert a 0.01 μ F. condenser on the tag strip where R19 used to be and earth the other side.



B.F.O. STAGE.

35. From R18 (on the side facing the middle i.f.), insert a 1 megohm resistor and solder it to R11, which you have lifted from ground (R11 is the 100K resistor on the tag-strip nearest to the first i.f. base, but actually comes from the second i.f.).

36. To shut off the a.v.c., insert a switch from the junction of R11 and the 0.95 μ F. condenser (see C16A) to ground.

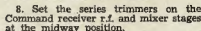
37. From pin 5 of the third i.f. run a lead to pin 3 of the 6H6 and earth pin 4 of the 6H6.

38. Run a copper shield between the pins of the 6H6, i.e. from pin 1 to pin 6 and earth both pins.



PICTORIAL

7. Couple an output meter to the cathode of the last i.f. valve or the loudspeaker terminals. (An audio note must be on the input signal.)



9. Tune the r.f. and mixer stages with the parallel trimmers for maximum output.

10. Set the v.f.o. at 7300 kc. and peak the series trimmers. Repeat steps 9 and 10 until the output remains at its maximum across the entire band.

11. Peak the i.f.s. at top and bottom and if self oscillation is experienced when peaking these i.f.s., damp the primary of the last i.f. with a 50K to 100K resistor as described in step 18. ●

39. Remember to keep the plate and cathode leads of the a.n.l. away from each other, and if an a.n.l. shut-off switch is inserted, run separate screened-leads as shown on the schematic. The return lead can be coupled directly to the volume control potentiometer.

40. From pin 6 of the third i.f. connect a 220K resistor to pin 5 of the 6H6, and connect a 330K resistor from pin 5 of the 6H6 to ground.

41. Connect a 1 megohm resistor from the junction of the 0.01 μ F. condenser and R18 (or 560K resistor) and pin 8 of the 6H6, making sure that this resistor is on the cathode side of the shield on the 6H6.

42. Make up a screened lead with a 0.002 μ F. condenser inside the shield and connect it to the volume control on the front panel and run it back to pin 1 of the 6SN7.

As the receiver is now a bandspread model for Amateur bands only, the usual signal generator is not accurate enough. Use the following equipment:

(a) A frequency standard, e.g. BC221.

- (b) The shack receiver must be equipped with a b.f.o. (if it is possible two receivers will make matters much easier and quicker, the one set high and the other low).
- (c) Station v.f.o.
- (d) Output meter.

1. Set the first receiver with the BC221 455 kc. above the low end of the band, e.g. 7455 kc. and the other receiver 455 kc. higher than the top end of the band, e.g. 7755 kc.

Note: L. (Low) is maximum capacity, i.e. fully clockwise.
H. (High) is minimum capacity, i.e. fully anti-clockwise.
P.—Parallel trimmer condenser. S.—Series trimmer condenser.
When the above has been completed, calibrate the dial in kilocycles.

43. Insert a 220K resistor from pin 2 of the 6SN7 to C32 (h.t. line).

44. Connect a 1K resistor and a 10 μ F. condenser between the cathode of the 6SN7 (pin 3) and ground.

45. Couple a 0.01 μ F, condenser from pin 2 of the 6SN7 to pin 5 of the 12A6 and remove the grid resistor R20 (2 meg.) and replace it with a 470K resistor.

46. Replace R21 with a 470 ohm resistor in the cathode of the 12A6.

47. Mount a universal output transformer behind the b.f.o. can and couple it up.

48. Rewind or pad the b.f.o. coil up until it grid dips to 455 kc.

2. Turn C4 (the main tuning condenser) to maximum, i.e. clockwise. This will be the 7 Mc. position and mark this position on the dial.

3. Zero beat the local oscillator of the Command receiver against receiver No. 1 by adjusting the parallel trimmer.

4. Turn C4 to minimum, i.e., anti-clockwise. Mark this position on the dial as 7300 kc.

5. Zero beat on receiver No. 2, Repeat steps 3 and 5 until perfect tracking is obtained and then leave the local oscillator severely alone.

6. Set the v.f.o. with the BC221 on
7 Mc.

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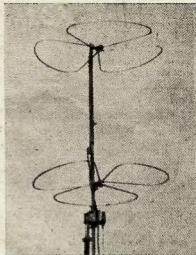
THE BIG WHEEL ON TWO*

Improved Omnidirection Coverage on 144 Mc. with Horizontal Polarisation

ROBERT H. MELLEN, WIJD

and

CARL T. MILNER, W1FVY



FOR the two-metre buff, here is a new omnidirectional cloverleaf antenna with horizontal polarisation. Large size results in improved bandwidth and coverage over the popular halo, and gives superior anti-flutter properties in mobile operation. Singly or stacked, the Big Wheel is also a boon for local work from the home station.

Anyone who has been involved in local two-metre net operation knows that there are many times when the directivity of a beam antenna is a handicap, and some of its gain could be profitably sacrificed for good omnidirectional coverage. For the mobileer, an omnidirectional radiation pattern is a must. For him, there is only the choice of sticking with the vertical whip or, if he wishes to avoid cross polarisation with the rest of the fraternity, graduating to the halo or turnstile. In any event, there is a good case for the horizontally polarised omnidirectional antenna on two metres. The question is only what type best serves the purpose.

Halos and turnstiles are surely steps in the right direction. The halo, particularly, has one marked disadvantage.

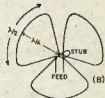
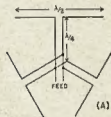


Fig. 1.—Development of the Big Wheel started with three half waves in phase, as shown at A. Despite poor matching initially, this configuration showed promise and evolved into the cloverleaf style at B. Each element of the cloverleaf is one wavelength long. Feed impedance is brought to 50 ohms through the use of a tuning stub.

It satisfies the polarisation requirement and has a fairly good pattern, but it suffers from small "capture area." This means less bandwidth and gain, and worse mobile flutter characteristics than are possible with antennae of larger size. The turnstile is somewhat better, but it is still a small antenna.

To study possible advantages of large size, we started experimenting with the old three-half-waves-in-phase type. This is a simple arrangement of three horizontal dipoles in a circle, fed in phase at the centre, as shown in Fig. 1A. Illustrations of this antenna are found in the literature but design details are lacking. This turns out to be a problem since, due to mutual coupling, both impedance and resonant frequency depend on the geometry. Thus the usual dipole formulae do not apply. Results of early tests of crude models of this antenna showed great promise, particularly for mobile use, despite poor matching.

The design shown here evolved not so much from trying to improve the matching properties, but simply to try something new. Instead of using the centre-connected transmission line, we decided to support the elements by feeders at each end instead of at the centre, as shown in B in Fig. 1. This proved to be a fortunate choice, as it resulted in simpler construction, better mechanical stability, and more easily adjustable electrical properties. Now, each element is a full-wave loop, and it can be bent to try out various shapes and diameters. The idea is the same as before, however. The half-wave portions of the loop at the rim serve as radiators, while the radial portions at each end serve as quarter-wave feeders. Don't try to figure out where one ends and the other begins!

In designing this antenna, the first step was to settle on the shape of the elements. Various configurations were tried ranging from the most compact arrangement, a wheel consisting of three pie-shaped elements with an over-all diameter of about three feet, to a huge cloverleaf with oval-shaped elements and an over-all diameter of almost five feet. As a result of these experiments, we found that compactness makes matching and current equalisation troublesome. Curiously, the radiation pattern is only slightly affected by the shape. For each of the elements there always remains a slight "front-to-back" ratio, roughly 3 db. Variations in the

pattern of this amount are barely noticeable in ordinary use. This observed pattern is shown in Fig. 2.

The next step was to trim the elements to length and adjust the stub for best s.w.r. at the desired frequency. Since all elements are fed in parallel at the low-impedance point, the input impedance would normally be quite low. Each has a radiation resistance of about 30 ohms in this configuration, which would give only 10 ohms for the parallel combination. To match to a 50-ohm line, the conventional stub-tuner scheme was used. Element lengths are chosen so that the impedance is capacitive and the circuit is then tuned to resonance with an inductive stub to give an input impedance of 50 ohms at the centre frequency.

The design described here has an over-all diameter of four feet. It is no more critical or difficult to build than a three-element beam. Elements are made of 1/2" o.d. corrosion-resistant aluminum tube. The lengths are bent cold to the shape shown in Fig. 3. For



Fig. 2.—Performance of the cloverleaf array. Frequency response can be controlled over a wide range, depending on the shape of the elements and over-all size. The configuration described is usable over the entire band if centred near 144 Mc. There is a slight dip in the radiation pattern in back of each notch in the cloverleaf, but this is hardly noticeable in ordinary operation. In mobile work it is insignificant.

* Reprinted from "QST," Sept., 1961.

good performance over the band, 80° lengths are used. The bracket and remaining hardware are prepared according to Fig. 3, and the elements mounted. Wood dowels are used to plug the element ends to provide strength and seal against moisture. The tuning stub is then cut to 5" over-all length, bent to shape and mounted as shown. Finally, the transmission line is prepared and connected. Keep the leads short or

the s.w.r. will suffer. After assembly the structure is checked for conformity to dimensions and is ready to go.

As shown in Fig. 2, the s.w.r. should be 1.2 or better over the band. The pattern should be uniform to within ± 2 db.

STACKING THE BIG WHEEL

Two of these antennae can be stacked for the home station with an increased array gain of about 4 db. To improve the radiation pattern, the stacked antennae can be staggered by 60 degrees.

Stacking increases the directivity only in the vertical plane, while horizontal polarisation and the omnidirectional pattern of the single antenna are preserved. This type of array is widely used in f.m., t.v. and beacon applications, where such properties are required. With the broad bandwidth and uncritical behaviour of the Big Wheel, it is not difficult to realise considerable stacking gain by adding more bays before reaching the point of diminishing returns. In fact, results can be achieved in all directions which compare favorably with a small beam in its best direction.

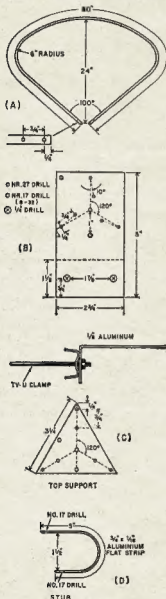


Fig. 3.—Structural details of the Big Wheel 2-metre array. One element is shown at A. A wood dowel 2 inches long is driven into each element to add strength. The grounded lower support is shown at B. It is bent down at a right angle to permit mounting to a vertical pipe with a T-type U clamp. The triangular top support is shown at C, and the tuning stub at D. The array is fed with 50-ohm coax, the inner conductor of which is connected to the upper support. Brass screws (1/4 inch 6-32) are used to assemble the parts.



for coaxial line a full wavelength is about 33", due to the propagation factor of the line. The length of the coax is important, as both matching and phasing depend on it. The spacing is nominal, however, and it can be adjusted to make the phasing sections fit properly.

The arrangement for a two-bay antenna is shown in Fig. 4. A full wavelength of RG-11/U 75-ohm coax is used for the phasing section. It is driven by 50-ohm RG-8/U transmission line at a point 1/4 wavelength up from the bottom, to achieve proper impedance transformation. The two ends of the coax are out of phase, so one of the bays must be turned upside down to put the antenna currents in phase.

Fig. 4.—Stacking method for two Big Wheel antennas. Because of the propagation factor of coaxial line, an electrical full wavelength of coax is approximately 1/4 wavelength long. This is the optimum stacking dimension for dipoles. By using a 75-ohm phasing line the system may be fed at the point indicated with a 50-ohm transmission line. Note that one bay must be inverted to keep antenna currents in phase.

When the original 5" stubs were used, it was found that the point of minimum s.w.r. had shifted from 146 to 148 Mc., due to coupling between the bays. This was corrected by increasing the stub length from 5" to 8" total length. The resulting s.w.r. curve is almost identical to that of a single antenna. With the bays staggered 60 degrees on the mast the pattern variations are negligible. Gain is approximately 4 db. over a dipole.

For both mobile and fixed station, the Big Wheel has performed beyond our fondest hopes. Mobile results are particularly astonishing, as the troublesome rapid flutter is remarkably reduced. Our best testimonial was the occasion when one operator said he could not believe that such a strong, steady signal was coming from a moving car at such a great distance. At home it's a pleasure to be able to hear everyone in the Shoreline Net without continually fussing with a rotator.



SAD STORY OF C.H.C./H.T.H.

Overheard recently one W telling another that he earned his H.T.H. Award in 1 hour 20 minutes sat during a C.H.C. get-together in the States. I have no doubt that Cliff Evans, K6BX, had high ideas and aims for this brainchild of his, but with the advent of so many Statewide C.H.C.s, the award has lost its point of view of "standard of attainment" is at an all-time low.

For those who like to belong to "socials" it is no doubt a "worthy", but from a DXer's point of view it has little merit.

It is good to seek awards, but only the right ones. There are three that are obtained only by Amateur Radio's highest endeavour, and there are those who can be had for working a couple of stations and sending along 10-15 L.R.C.

There are those who provide some social status also. So let each Ham judge for himself.

Award hunting has now reached the stage where countless awards are available and it is pointless to continue stacking them into the bottom drawer.

73, Al, VK4BS, C.H.C./H.T.H.

The 2-metre Big Wheel for mobile or fixed-station use.

Gain of a stacked array depends on both the number of bays and the spacing between them. In these experiments the optimum spacing of 1/4 wavelength was used. Two-bay arrays were tested, showing a gain over a dipole roughly equivalent to a two element Yagi, but in all directions. It appears that 4, 6 or even 8 bays might be used, but the point of diminishing returns is rapidly reached, as the number of bays must be doubled for substantial gain and the length of mast required becomes a problem.

With a bay spacing of 1/4 wavelength it is convenient to use full-wavelength phasing lines of coax. At 146 Mc. 1/4 wavelength is approximately 50", while

† Extensive tests of the Big Wheel have been made by the Editor "QST", both at the home station and in the field. The single-bay cloverleaf array has given performance superior to any other single omnidirectional antenna yet tried, and the two-bay system is all that the author claims. In portable work, particularly, it has been found that a two-bay Big Wheel brings in signals with a strength comparable to that achieved with small Yagis, yet it delivers this performance in all directions and over a wider frequency range than is obtainable with parasitic arrays. Tests are currently underway with a four-bay system and results will be reported at a later date.

—WINDQ.

Performance Tests on the Big Wheel 2-Metre Array*

Stacking Information and Results with Omnidirectional Antennae

IN the previous article WILD and WIFVY described a novel omnidirectional array for 144 Mc. mobile or fixed-station work. These fellows are now engaged in ice research in the Far North (at time of writing this), and there was not sufficient time for them to complete tests on stacked versions of the antenna before their scheduled departure, so the writer gladly took up where they left off. As is usual when one tries to get to meaningful numbers in connection with Amateur antennae (and by Amateur methods) this turned out to be no mean task.

On-the-air results are all that really count in evaluating the worth of antenna ideas for Amateurs. Precise measurement of pattern and gain are all but impossible, but if an antenna "has what it takes," protracted use of it under many differing conditions will show its superiority clearly. The "many" in the above sentence bears emphasis. Routine comparisons of various antennae can show widely different results. In fact, if they don't there is probably something wrong with the tester's methods. Reflections from ground, trees, buildings, hills, cars and the like add to or subtract from the direct signal to such an extent that "gain" figures taken by working stations and comparing signal reports show large variations from one station to the next. These are part of everyday v.h.f. communications, so the thing to do is to work many stations at various distances and directions with a given comparison set-up. Then, if you want to know for sure, you set up again in a different location and work another bunch. This is time-consuming, but interesting if one keeps a detailed log of the results.

The writer spent many hours at this sort of thing with the Mellen-Milner Big Wheel. Tests at the WHDQ home location proved inconclusive, because of a side-hill test area, and trees, guy wires and towers in the way of anything that could be worked on readily. So, after the matching problems were worked out to our satisfaction, we took the collection of antennae and masts out to some of our favourite wide-open hilltops. The single-bay cloverleaf was mounted on a 15-foot mast. Two-bay and four-bay stacked arrays were tested on a 24-foot support. All were checked against the turnstile regularly used for mobile work. This put the turnstile in a seemingly unfavourable light, as it was used in its permanent position some 20' above and to the rear of the WHDQ station wagon. The turnstile had established itself as an effective mobile antenna, however, so it was useful as a standard reference for checking results with the larger and higher arrays.

RESULTS

All told, around 100 different stations were worked or logged, and their signal strengths tabulated in terms of decibels above the readings obtained with the mobile turnstile. Care was taken to see that these stations were in various directions, at all possible distances, and well distributed throughout the active portion of the band. As expected, indications from these tests varied widely, but we feel that enough of them were made so that they are valid indications of what can be expected from various versions of the Big Wheel. It should be stressed that the margin credited to the single-bay Big Wheel over the turnstile is largely the result of the former having been mounted at considerably greater height. These tests were not intended to show the relative merits of the turnstile and Big Wheel; the turnstile was used merely to provide a reference against which all other set-ups could be compared.



Fig. 5.—Feed system for a four-bay version of the Big Wheel 2-metre array. The two centre bays are the same side up, while the two outer bays are inverted. Bays are approximately $\frac{3}{4}$ wavelength apart physically, which permits the use of full-wave phasing sections between them. The feed points of each pair are then fed through two $\frac{3}{4}$ -wave phasing sections, and a 50-ohm line at the midpoint sees an almost perfect match. The tuning stubs on the two inner bays (see previous article) are 7 inches long, while those on the outer bays are 5 inches.

The tabulation below includes only received signal strengths at WHDQ/I. Many reports were taken from stations worked, but individual S metre readings varied so widely that no numerically-useful data could be obtained from them.

Average gain, 1-bay cloverleaf over turnstile	5.7 db.
Average gain, 2-bay over 1-bay	6.2 db.
Average gain, 4-bay over 1-bay	8.1 db.

The "gain" obtained with the 2-bay Big Wheel appears out of line, but more readings were taken with various versions of this array than any other,

and we can assure the reader that the 2-bay version really does perform. Time and again, signals which could be heard only as faint whistles with a beat oscillator with a single-bay antenna jumped up to solid voice readability on the 2-bay version. These were not included in the tabulation, as the strength of the non-readable signals could not be established readily—but they do show that a stacked Big Wheel does what everyone wants an antenna to do: it brings in signals that cannot be heard with simpler antennae. It should be emphasised, however, that these are not antenna-range measurements, and should not be interpreted as such.

The stacked versions proved to be nothing short of spectacular on signals coming from extreme distances. On one occasion a signal from a New York area station was totally inaudible on the single-bay and the turnstile, yet it was a readable S3 on the 2-bay array. This was over an insect hilly rural area of some 75 miles, and the test was made around 1 p.m. on a hot summer day, when tropospheric bending was at a minimum. Tests made at night often showed the 2-metre band loaded with weak signals, fading into and up out of the noise, when either the 2-bay or 4-bay stacks were switched to the receiver. Tuning the band with the turnstile and single-bay antennae under the same conditions would show only the strong signals of locals and near-locals. Many contacts were made at distances up to 100 miles or so from locations where long experience in the past has shown that some form of beam is a must for raising stations at anything like this distance.

We worked hard at trying to make the stacking of two pairs of antennae pay off as much gain as did the stacking of two single bays, but this would not quite "come off." The indicated gain from the latter is more than would be expected on the basis of stacking theory, but it was there, over and over again, in unmistakable fashion. This is probably due to the nature of v.h.f. propagation, wherein lowering and narrowing of the vertical pattern pays off in surprising fashion on some paths. You get this when you begin stacking. More stacking pays off, but not so spectacularly as the first step.

But a gain of 8 db. with an omnidirectional antenna is not to be sneered at. You'd have to put up a pretty fair Yagi to equal this and remember the 4-bay Big Wheel gives the gain in all directions. This is not an unalloyed blessing, however. The stack of Big Wheels is fine for net activity and local rag-chewing, but its omnidirectional pattern and high gain can multiply QRM problems many fold. The 2-metre band becomes a mass of heterodynes when some tropospheric bending is present. Another feature on the debit side: interference from commercial signals in the v.h.f. range multiplies with an omnidirectional array of such beautifully broad frequency characteristics. We were forced to abandon work with the Big Wheels in one favourite location where there are two f.m. stations, a u.h.f. t.v. station, and various police and forestry-service re-

(Continued on Page 12)

* Reprinted from "QST," Oct., 1961.

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V.H.F. AERIAL MATERIALS*

D. A. S. DRYBROUGH, B.Sc. (BRS22550)

MOST Amateurs interested in v.h.f. or u.h.f. operation would like to experiment with aerials, knowing that they play a very important part in the overall performance of a station. However the availability of cheap and effective commercially-made beams may well have discouraged some from taking up this aspect of station design, especially where a fair amount of "plumbing" appears to be involved. Not everyone thrives on the bending, shaping and fixing of aluminium tubing, such as is called for in most v.h.f. or u.h.f. aerial designs, and it is the purpose of this article to point out that such skills are not really necessary because other, more easily handled, and cheaper materials can be used for most aerial experimental work at these frequencies.

The idea of using other materials occurred to the writer during a visit to the Lichfield I.T.A. station some years ago when the engineer-guide showed the party a spare element for the aerial then in use. It was galvanised! If such a finish was considered suitable for a high power v.h.f. t.v. aerial, then it would surely be worth investigating for Amateur use. A check was therefore made into the relative merits of various materials for use as v.h.f. aerial elements with interesting and cheering—results.

The radiating efficiency of an aerial can be defined as the ratio of the power radiated by it to the power supplied to it and is sometimes quoted as a percentage. The difference between the radiated power (P_r) and the input power (P_i) is the power lost in the aerial itself (P_l). The aerial can therefore be given the equivalent circuit shown in Fig. 1 (b) because power in such a circuit can be lost only in a resistive element and both power-dissipating mechanisms in the aerial can be replaced by resistors, R_r and R_l , such that together they dissipate the same total power as the actual aerial does. R_r proportional to the power radiated by the aerial, is then the "effective radiation resistance" of the aerial while R_l , proportional to the power lost in the aerial elements, is the "effective loss resistance". When considering the relative efficiencies of various materials as aerial elements, Amateurs are vitally interested in the behaviour of the "effective loss resistance" (R_l), as defined above, of an aerial system when the materials of which it is made are changed.

Starting from the fact that most aerials are made up of arrangements of lengths of metal of more or less uniform cross-sectional area the "d.c." resistance of such a length, say L , with area A , can be calculated by applying the formula:

$$R_{dc} = (L \div A) \times \text{resistivity, where resistivity is the resistance per unit length and unit area for the material involved, usually given in ohms per centimetre cube. Taking } L \text{ as a half-wavelength at } 145 \text{ Mc. and } A \text{ as the area of } \frac{1}{4}'' \text{ diameter rod, typical values of } R_{dc} \text{ are as follows:}$$

Metal	Resistivity (ohms per cm. tube)	Resistance
Copper	1.72×10^{-6}	0.0023 ohm
Aluminium	2.83×10^{-6}	0.0037 ohm
Zinc	5.90×10^{-6}	0.0077 ohm
Brass	7.50×10^{-6}	0.0098 ohm

All these are negligible with respect to the radiation resistance (R_r) of a half-wave dipole which is about 65 ohms for the chosen element diameter, but this is not the whole story. As the frequency of the current flowing in the material is increased from "zero frequency," or d.c., an effect, called the "skin effect," modifies the current distribution in the cross-section of the conductor, tending to concentrate it more and more in its outer skin as the frequency rises—hence its name. This reduces the working area of the conductor and so increases its effective

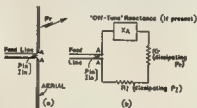


Fig. 1. Dipole aerial and equivalent circuit.

resistance. At v.h.f. the skin carrying most of the current becomes very thin indeed, less than half a "thou" (0.0005 inch), and is proportional to the square root of the conductor resistivity. Thus the skin is thicker for the metals with the higher resistivities, making their "r.f." resistance less relative to their "d.c." resistance than for the better conductors like copper and their use at v.h.f. less futile than might be assumed from their resistivities. The "r.f." resistance (R_r) for a current which is constant along the length of the half-wave element is found to be approximately as follows:

Metal	Skin Depth	R_r R.F.	Ratio of R_r to R_{dc}
Copper	0.00022"	0.34 ohm	148
Alumin.	0.00028"	0.41 ohm	111
Zinc	0.00040"	0.60 ohm	78
Brass	0.00045"	0.68 ohm	69

These "r.f." resistances cannot yet be used to calculate the efficiency of a dipole aerial because such an aerial does not carry a current which is uniform along its length. The current distribution for a half-wave dipole is normally taken to be half a sine wave, having its maximum at the centre of the aerial, and so equal to I_m in Fig. 1. The average current and also the effective loss must therefore be less than

for the constant current case considered above and integration of the power loss over the whole aerial results in the value $0.5 I_m^2 R_r$ or $I_m^2 \times 0.5 R_r$. Since the input current to the aerial is I_m it follows that the true effective loss resistance, R_l , for a half-wave dipole is $0.5 R_r$. This value, and the corresponding radiation efficiency and aerial loss in db., is shown for the selected metals in the following table:

Metal	R_l	Radiation Efficiency	Loss due to Aerial Elements
Copper	0.17 ohm	99.75%	0.011 db.
Alumin.	0.20 ohm	99.7%	0.013 db.
Zinc	0.30 ohm	99.5%	0.022 db.
Brass	0.34 ohm	99.4%	0.026 db.

It should be noted that these results are for $\frac{1}{4}''$ diameter elements, not the more usual $\frac{1}{2}''$ diameter tubes. Such larger tubes would result in still lower "r.f." resistances although the "d.c." resistance of very thin-walled tubes could be greater than those quoted above for $\frac{1}{4}''$ diameter rods.

Simple formulae for those who wish to calculate skin depth and R_r for themselves are as follows:

For solid rods,

$$R_r = R_{dc} \times \frac{\text{diameter in inches}}{4 \times \text{skin depth in inches}}$$

For thin-wall tubes,

$$R_r = R_{dc} \times \frac{\text{wall thickness in inches}}{\text{skin depth in inches}}$$

Skin depth, at v.h.f., in inches =

$$\frac{2 \sqrt{a + \mu F}}{2 \sqrt{a + \mu F}}$$

where a is resistivity in ohms per cm. cube,

μ is permeability, taken as 1 for non-ferrous materials,

and F is frequency in cycles per second.

Having theoretically established that quite thin elements of a variety of metals could be used for v.h.f. and u.h.f. aerials, the next step was the choice of a suitably cheap, easily available and readily worked material with which to experiment.

Zinc wire is a rare commodity, of course, but a standard line in agricultural ironmongers is galvanised fencing wire in various gauges. This is iron wire with a very heavy zinc coating, entirely adequate to act as a zinc conductor at v.h.f. and u.h.f.; it costs only about 1/6 per pound. The length to the pound for 10 s.w.g. wire, which has a diameter a little over $\frac{1}{4}''$, is more than 22 ft., making the cost just over $\frac{1}{2}$ a foot. The wire can readily be shaped and soldered and is self-supporting for lengths of at least quarter-wave at 145 Mc. It can be fixed to wooden supports by means of staples and this construction is adequate for loft arrays. For Yagis a boom is required and $\frac{1}{4}''$ or $\frac{1}{2}''$ galvanised tubing can be used. This can then be drilled transversely at the appropriate element spacings for the

* Reprinted from R.S.G.B. "Bulletin," June, 1962.

1/4" diameter elements which can be fixed in position by soldering, using a normal, medium-sized, electric iron. Construction results in a light, yet strong, aerial suitable for fixed or mobile application.

This cheap material has been used by the writer for a wide range of aerials with good results. The most spectacular perhaps, was a 10-turn, bi-directional helical aerial. This was supported from a 10 ft. 6 in. long wooden beam. Each turn was 28" diameter, spaced 14" from the next turn, and the aerial was split in the centre for connection to the feed line through a balun. The total conductor length used was about 60 ft.—think of coiling that amount of 1/4" diameter aluminium tubing into a smooth helix! On this aerial, IISVS was heard in the summer of 1959 on sporadic E—a fluke of course, but useful for proving that the aerial did work!

Slot aerials are especially easy to make and mount and another bi-directional array consisting of two such slots, stacked one above the other on a wooden pole some 20 ft. high, was used with good results for an extended period. Folded dipoles are also convenient and a pair in a broadside or "flat top" array was used for a spell in the loft. Yagis of various sizes have also been tried. The outside aerial at the moment is a four-element, wide-spaced unit, supported by a bamboo pole about 7 ft. long which is cleated to a wall so that the Yagi is about 12 ft. above ground. Even in the writer's rather

poor QTH this aerial has performed well and has weathered many high winds in the two years it has been erected. Since January 1961, 40 counties and eight countries have been heard using it, indicating that its performance has not yet been affected by corrosion.

A word of caution is necessary about the substitution of the smaller diameter elements for other sizes in published designs. The length of 1/4" diameter rod required for a half-wave dipole is about 0.956 wavelength (exact half wavelength) instead of about 0.94 wavelength (exact half wavelength) for 1/2" diameter elements, an increase in length of about 1.7 per cent. This correction can be applied to parasitic elements of the same order of length in Yagi arrays but element spacings need not be altered.

The thinner elements exhibit a narrower bandwidth and this may become significant, even for the relatively narrow Amateur bands, in the case of close-spaced Yagis or other aerials which have a very low impedance feed point.

Very little attention has been paid to the 430 Mc. band and higher bands,

mainly because the writer has not yet operated in any band higher than 144 Mc., but, theoretically at least, the fencing wire should be even better at the higher frequencies. This arises because, with increasing frequency, the "r.f." resistance of a given length of material rises only in proportion to the square root of frequency, whereas the length required for a half-wave dipole decreases inversely as the frequency.

The "r.f." resistance of a dipole therefore decreases in inverse proportion to the square root of frequency, and is therefore only about 1/√3 or 0.58 of the 145 Mc. figure at 430 Mc.

The radiating efficiencies of such dipoles, constructed of the zinc-coated metal, should be indistinguishable from those of aerials using larger aluminium or copper elements and the diameter of 1/4" should be mechanically adequate for all normal element lengths and perhaps even for mounting booms. It is hoped to try such an array shortly when a new 430 Mc. converter has been constructed.

REFERENCES

"Radio Engineering," E. K. Sandeman.
"Radio Engineers' Handbook," F. E. Terman.

VK2AHM—R. J. WHYTE



PERFORMANCE TESTS

(Continued from Page 8)

lays. These non-Amateur stations give little, if any, trouble in this fine mountain spot when a Yagi antenna is used.

The Big Wheel should prove a blessing in many types of 2-metre work, however. If you can take the jibes of pedestrians and passing motorists, a single Big Wheel should give you the best 2-metre mobile signal in your area. If you live in a spot where you can put up only one antenna, and rotators are out, a stacked Big Wheel will make the 2-metre band a lot more interesting for you than it ever was before.

Reports following the appearance of the Big Wheel in "QST" indicate some confusion about the construction of the antenna. Referring to Fig. 3 (previous article), each element (A) runs from the grounded plate (B) to the triangular plate (C).

These two plates are mounted one above the other, at a spacing determined principally by available inductors. Ceramic standoffs 1" to 1 1/2" long are suitable. The Johnson S-82 cone, part 135-561, 1" long, with 8-32 threads, is good. The designers also used a bakelite block 1" long, with molded-in brass inserts, though we do not have a part name or number for this.

The tuning stub (D) is shown bent around a 1/2" radius, but this is not critical. Note that the stub length is 5" for a single bay. For a stacked 2-bay system the stubs should be 6" long. In a 4-bay array the top and bottom stubs are 6" and the inner pair 7". For a single bay mounted above a metal car top for mobile work, a 6" stub may be needed.

—E.P.T.

R. J. (Jeff) Whyte, VK2AHM, is seen in his shack with the equipment used during the 1962 Remembrance Day Contest.

From the left we have, firstly, a Racal RA-17-L receiver, surmounted by a barely discernable Collins TCS transmitter. These were used on 160 metres. Second in line is a Drake 2B receiver; followed by the 32 volt operated receiver, comprising a Gecoso front-end (much modified) feeding into a BC453—again with changes to suit 32 volts. Just visible above his shoulder is the dial of the main, remotely controlled v.f.o. (Older Hams will remember VK2AHM's "Steeco" v.f.o., using 6X50 tubes. This tunes the latest model.) Next to his head is the main transmitter, with an 813 switching from 10 to

80 metres. To the right again is the modulator for same. A pair of 811s, zero bias. Below is the 32 volt operated transmitter, a pair of 807s used for both a.m. and d.s.b.

Above VK2AHM's head is the terminal panel for the eight vee beams and the rhombic that are in general use. Above again, an antenna tuning device and a pair of speakers.

Only a portion of the control panel is visible on the bench. Once switches are thrown there, the requisite receiver and/or transmitter comes under the control of a single, foot-operated switch. All the a.c. operated gear is powered by a diesel-driven alternator.

VK2AHM concludes, "The Racal and Collins affairs, I regret to say, are not mine."

MODERN RECEIVER FOR THE AMATEUR BANDS*

Further Circuit Points, Construction and Setting Up

PART TWO

J. D. HEYS, G3BDQ

BEFORE proceeding further, attention is drawn to the following amendments to Part One of this article: In the table of values on page 10 (Oct. '82 "A.R.") R7 (1,000 ohms) and R30 (250K, 1w.) should have been included. Also, on page 13, fourth paragraph, the tuning range of the variable frequency oscillator ought, of course, to have been given as 1955-2485 Kc., and not as stated.

As already explained in Part One, provision has been made for both carrier and product detection. When SW3a is in the a.s.b./c.w. position (see Fig. 2, pages 10 and 11, Oct. issue), h.t. is applied to the 7380 valve (V8). The secondary of the final i.f. transformer IPT4 is also connected to one of the beam-deflecting electrodes (pin 8—see Fig. 2, V8) of the product detector via SW3b. Use is made once again of the cathode tap oscillator circuit and the 7380 valve provides its own b.f.o. injection. L11 was made from a midget LW aerial coil of the type sold for crystal sets, and a few turns were removed to make it tune to 450 kc. when using the capacitors indicated (C85 and C86).

An OA75 semi-conductor diode, D1, is connected from the control grid of V8 to earth and this prevents the grid approaching earth potential. (Without this diode there would be considerable distortion.) Audio output from pin 6 of V8 is taken to the audio gain control R40 through a simple r.f. filter comprising R42, C54 and C55.

With SW3 in the a.m. position V7b operates as an infinite impedance detector, which is really a kind of cathode follower. The blocking capacitor C38 is necessary owing to the possibility of h.t. being applied to the grid of V7b should SW3 not be of the break-before-make type. Audio output from the cathode of V7b also runs through the r.f. filter network.

The grid and anode of V7a are strapped and connected to the secondary of IPT4 through a blocking capacitor C37. A fixed bias derived from h.t. is applied to the cathode of V7a to prevent operation of the a.v.c. circuit when receiving weak signals. The time constant of the a.v.c. system is arranged for a slow decay which enables satisfactory reception of s.a.b. and c.w. signals and renders S meter readings of these fluctuating signals an easy matter.

THE OUTPUT STAGE

The usual precaution of running leads to and from the a.f. gain potentiometer R40 in shielded and earthed wires is

observed to prevent instability and hum. The triode section of V9 is a normal voltage amplifier which is R.C. coupled to the pentode control grid. By using a 500-ohm potentiometer R35 in parallel with R36, it is possible to take off a positive reference voltage for the S meter circuit. This voltage should be equal to the no-signal cathode voltage of V6, which is about 2 volts. Under these conditions the S meter will read zero, although in practice it is better to set R35 to give a meter reading of S2 for more realistic reporting. Signals strong enough to overcome the fixed a.v.c. bias on V7a will cause a reduction in the voltage on V8 cathode and bring up the S

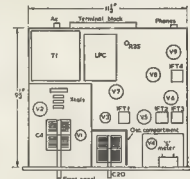


Fig. 3.—Layout above chassis and arrangement of the main items in the G3BDQ receiver—complete with one of the photographs. This drawing is not to scale and is intended for suggestion only.

meter. R41 across the meter enables the operator to set things so that the strongest signal likely to be encountered cannot pin the needle against its stop.

In the circuit diagram (Fig. 2) the headphones and speaker are arranged to operate together. Should phones-only reception be required a shorting switch can be wired across the output transformer secondary. R24 limits the anode current of V9 and whilst hardly affecting the power output, greatly reduces the heat dissipation of the valve.

POWER SUPPLY

A C-core mains transformer acquired cheaply on the surplus market provides power for the receiver; this type of fully screened transformer seems to be much more reliable than the normal drop-through variety and the writer has never had one break down. The 5-volt rectifier filament winding is not used because the silicon diode D2 and D3 provide h.t. rectification and this all helps to lighten the load on the prim-

● The first part of this interesting practical article appeared in our October 1962 issue, and it will be necessary to refer back to it to follow the discussion here, which concludes the treatment. —Editor.

ary of T1. After several hours' operation the transformer remains cold to the touch. C67 and C68 are high voltage disc ceramic capacitors and help to reduce any mains borne interference. Two one-amp. fuses are used on the input side and a 200 mA. pea bulb serves to fuse the d.c. output. This also affords some protection to the silicon diodes should an accidental short circuit occur.

Two 6.3 volt heater windings are used, one for each half of the total current load. By having a choke input smoothing circuit the output voltage is 200v, which is adequate for the valve types used in the receiver, and regulation is improved. SW3d and SW3e are wired to give "Off" and "Standby" switch positions, centre tap switching being employed.

CONSTRUCTION

The receiver is built around a vented cabinet measuring 13" x 8" x 10" deep. This item, together with a matching 3" deep aluminium chassis and a special 1/4" aluminium panel, completes the cabinet. This type of cabinet is perforated for approximately two-thirds of the total top and side areas. If ordering a similar cabinet it would be as well to ask for a 1 1/2" slot to be cut out at the rear to allow easy access to the terminal block and aerial socket.

Side brackets were fitted to strengthen the chassis assembly and to minimise panel movement. Fig. 3 shows the location of the main components above the chassis, and it will be seen that despite the bulk of the mains transformer and smoothing choke there is no crowding—and see rear view photograph. This can be partly explained by having worked in three dimensions, the front-end and Q multiplier units being "above deck". A large section of the chassis beneath the front end unit was cut away to allow easy access to the cores of the pre-selector coils.

The underside view of the receiver reveals a U-shaped aluminium screen behind which are housed the detector circuits and SW3. It is important that the b.f.o. wiring be kept within this screen to prevent b.f.o. voltages leaking back ahead of the product detector. Should this happen it will give rise to a considerable S meter reading when the b.f.o. is running.

Normal practices should be observed when wiring the receiver. Short direct leads, and the positioning of resistors and capacitors parallel to the chassis sides all help to prevent a rat's-nest appearance. Since the receiver was built some small 0.1 μF ceramic capacitors have become available, and these could conveniently replace the somewhat larger paper types used.

A word perhaps should be said regarding the finish and appearance of the front panel. Many Amateurs produce

* Reprinted from "The Short Wave Magazine," July, 1962.

efficient and reliable equipment which is unfortunately spoiled by an untidy panel layout. The first consideration is the main tuning dial. Space was at a premium when designing this receiver so thoughts of horizontally scaled slide rule dials were dismissed and a Muirhead instrument vernier dial and slow motion assembly was used. This item is available on the surplus market at a small fraction of the cost of more showy yet often less effective dials. With the Muirhead, logging positions to one part in 1,000 can be noted, and the action is silky and positive with no trace of backlash.

The remaining controls are arranged along horizontal lines and help to give (what is hoped is) the professional touch to a piece of home-built equipment. Chrome-plated bolt heads and lettering transfers add finish to the general appearance.

INITIAL TESTING

Assuming that the front end unit has been built along the lines suggested, and tested, it can be fixed into place on the main chassis. The second mixer and I.F. stages can now be tested, and for this purpose an old BC453 or "Q-Fiver" may be pressed into service. With only V1, V2 and V3 in position the BC453 is loosely coupled to V3 anode and tuned to 460 kc. Signals should be heard, and the top band tuning range is best suited for this operation, there being a number of identifiable stations on at all times. If all is well, V5 can be inserted and the BC453 coupled in turn to its anode. Most i.f. transformers sold these days are pre-tuned to 460 kc. or 465 kc. and very little adjustment of their cores should be needed. If any instability is noticed this must be righted before proceeding further.

V6 is tested similarly, and you must remember to keep backing off the gain of the BC453 as you work along the i.f. strip! It may be that the top-coupled windings of IF2 and IF3 cannot be pulled on to frequency with core adjustments. This is because i.f. transformers are designed to work into normal valve inter-electrode capacities, and should this be the case some extra capacity will be required across the i.f. transformer windings in question.

V7a, V7b and V9 should work satisfactorily if they are wired correctly and no special test procedures are needed. The b.f.o. circuit must be tuned so that at mid-setting of C85 (pitch control) it oscillates exactly at the i.f. of 460 kc. Once more the "Q-Fiver" can be used to achieve this.

It should now be possible to use the receiver on an aerial and there only remains the correct setting up of the 5 meter circuit and the testing of the Q multiplier. The latter must be tuned to the centre of the i.f. passband by adjustment of its coil core and by the pre-set capacitor C47. V4 should just go into oscillation at one end of the track of R33. If it fails to oscillate the values of R30 and R31 may be changed to increase the anode voltage of the 6CW4 valve.

A point not to be overlooked is that the receiver is designed to work with a low impedance aerial input. This may entail the use of an a.t.u. should the station aerial be a long wire or the proverbial "piece of wet string". The receiver will certainly work with a bit of wire tucked into its input socket, but first class results cannot be expected when used in this way.

CONCLUSION

A muting system has not been incorporated in the design as shown here,

for most Amateurs have their own individual send/receive systems and can adapt the circuit to suit their particular station switching arrangements.

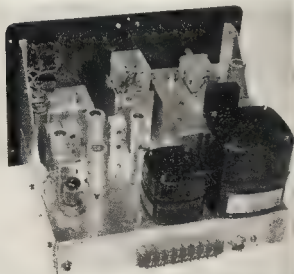
Although many receivers have noise-limiting devices or circuits, the writer has never found it necessary to use them at his QTH except when operating on ten metres or the v.h.f. bands. If the constructor has a particularly noisy location there are many effective and tried circuits which could easily be incorporated in the design.

Whether the whole receiver is constructed or whether instead only certain sections or ideas are borrowed from this article, the writer feels sure that the results obtained will be well worth the effort. Only the usual hand tools were used for the constructional work and a small square-topped wooden stool served as a workbench. This was because of the normal state of the real workbench, it being cluttered with numerous pieces of gear finished, unfinished or abandoned!

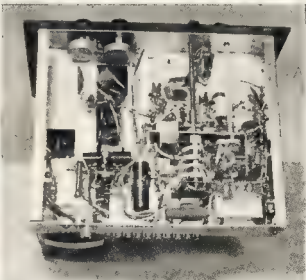
The completed receiver has now taken over the function of main station receiver; the trusty AR88 has been relegated to stand-by and other secondary uses.

SUBSCRIPTIONS

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Rear view of the 9-valve double-conversion Amateur-band receiver designed and built by G3BDQ. The C-core transformer and choke are both inexpensive surplus items. All parts used, including the latest valves incorporated in this design, are catalogue items obtainable from Amateur Radio supply houses.



Underside view of the Amateur-band receiver, showing screened compartment for the product detector and b.f.o. circuitry, using a 7369 in this position. Extension rods connect the function switch (SW2) in the main circuit and the b.f.o. control with their knobs on the front panel. Output transformer T2 is in lower right-hand corner of the chassis, and the pea-bulb serves as an h.f. fuse.

AN EASY WAY TO SHIFT COMMUNITY CRYSTALS

For many years now, large quantities of crystals have been available from disposals sources at relatively cheap prices. Many of these have been pounced upon by v.h.f. enthusiasts, particularly those with frequencies between 6 and 9 Mc., and used in converters and transmitters.

With the large amount of activity by stations using crystal-locked transmitters, particularly on 144 Mc., it is quite noticeable that a large number of Amateurs possess crystals on the so-called "community" frequencies. A good example of this is the 8036.25 kc. crystals producing output on 144 6525 Mc. in the two metre band.

Several Amateurs have successfully ground, or etched, these crystals to higher frequencies. But the majority of owners either put up with QRM, or put the crystal aside in favour of another which produces output on a clearer frequency.

The obvious answer to this would seem to be to use v.i.o. or v.x.o. control and these methods have much to recommend them.

However, another method of frequency shifting can be used quite successfully. This is the adding of lead, "Brasso", "Silvo", etc., to the surface of the quartz crystal slab. Although this method lowers the frequency of operation, it has several advantages over the grinding or etching methods.

(1) If it does not work, you just scrub the crystal slab in warm water and it will revert to its original frequency, none the worse for wear (unless of course you have been clumsy enough to break it).

(2) If the new frequency becomes inhibited by stronger stations, you can easily shift frequency again to another clear (?) spot.

(3) If, when trying to put the crystal on a specific net frequency, you go too far, all you have to do is wash the crystal and start again.

About the only disadvantage is that over a period of time—something over one to two years—the crystal may drift slightly in frequency, although one of my crystals has apparently remained stable over a period of at least two years.

For relatively large excursions in frequency—up to 300 Kc. on 144 Mc. using an 8 Mc. DC11 holder crystal (slightly less with smaller crystals such as the FT243)—"Brasso" or "Silvo", etc., seems to be best.

After pulling the slab out of the holder, it is advisable to wash it thoroughly with a tooth-brush and warm water. Do not use soap because it is difficult to remove completely when drying the slab, and it may have peculiar effects in the way of frequency drift.

After drying thoroughly with a lint-free cloth, apply a coat of "Brasso", etc., to one side. Allow to dry for several minutes and then polish with a cloth.

Then place the slab back into the holder and check the frequency. If it won't oscillate, take it out again and polish some more, adding more "Brasso" if necessary.

Too thick a coat may also retard oscillation and it may be necessary to wash the slab and start again. This will also be necessary if the crystal oscillates on two frequencies. However, nine times out of ten the crystal will work satisfactorily at the first attempt.

If you want to move it slightly lower in frequency, more polishing of the existing coat will do the trick. This seems to hold true even after a period of several months. But, if the frequency is too low, it will be necessary to wash the crystal slab clean and then apply a lighter coating of "Brasso", etc.

Most of my crystals have operated on numerous frequencies over the last 2½ years, but the current resultant frequencies on two metres are 144.440 Mc. for a crystal normally producing output on the "community" frequency of 144.6525 Mc., and 144.097 Mc. for a crystal normally on 144.1825 Mc.

If it is only required to lower the frequency of operation a few kc. on the output frequency, it seems preferable to use lead from a soft pencil, solder, etc., and apply short strokes to the centre of the crystal slab.

In my case a crystal on 760 kc. was etched to a frequency slightly higher than that required to produce output on the desired net frequency of 144.500 Mc., and then brought down to zero beat by applying short strokes from a soft-4B—lead pencil.

These methods of shifting crystal frequencies may seem strange, but they have been used for many years in various forms, and they do leave large margins for error.

I hope that a number of v.h.f. Amateurs read this article and try the methods outlined. If so, maybe there will be fewer pile-ups on the "community" frequencies.

See you on "two" on "Brasso" control.

—Bill Roper, VK3ARZ



Trade Review

FERRIS POLARISED TEST LAMP

This is a compact self-contained probe which indicates voltage and polarity by means of a lamp. An in-built silicon diode allows current to flow in one direction only, through the indicator lamp. The lamp will glow only when the probe is connected to positive and the clip lead to negative of a voltage source.

Its features include, compact size and reliability; a useful addition to radio or auto-technician's kit, particularly for installing transistorised car radios in modern vehicles with differing ground polarities; checks from 4 to 12 volts; is completely safe; full operating instructions displayed on probe.

Retail price is £1/4/0, all States, but the availability is limited.

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"	3010	"	8 "	7/4
"	3011	"	16 "	7/4
"	3014	1 1/2 "	8 "	8/5
"	3015	1 1/2 "	16 "	8/5
"	3018	1 1/2 "	8 "	10/6
"	3019	1 1/2 "	16 "	10/6
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Page 17

SIDEBAND TOPICS

(Continued from Page 17)

The foregoing was reported by Irv. and Dorothy Strauber in the s.s.b. department of "CQ" magazine. They go on to say that with the large number of Amateurs in the United States leaving a.m. and going to sideband, and with so many newcomers starting phone with s.s.b., it is becoming apparent that with the division of the 20 metre band at present, the lower end is becoming increasingly more deserted, while at the higher end, the opposite situation obtains.

Here in this country, I feel that we would do well to follow these suggestions. The presence of s.b. stations from 14.2 Mc. down is not going to make much impact on the a.m. stations' capabilities to work DX, principally because the a.m. DX is almost non-existent with present conditions, which you must keep in mind, are still deteriorating. Also the a.m. and s.s.b. compatibility has been proven on the 40 metre band.

A concerted effort by those of us who use 20 metres for DX contacts would quickly establish the old methods used before the coming of sideband. For those of you who have no experience of this, the 20 metre band was segmented as follows:—

14.0-14.1 Mc. C.W.

14.1-14.2 Mc. DX (i.e. non-W) Phone.

14.2-14.3 Mc. W Phone.

14.3-14.4 Mc. C.W.-DX Phone.

The present suggestion is for a return to this plan with W/K phone extending from 14.2 to 14.35 kc. In the past, this plan worked extremely well and would now have an added advantage in bringing a.m. and s.s.b. together. When was the last time you contacted an a.m. station on 20 mx? Your thoughts on this matter would be appreciated.

HOW MANY?

Do you know that Comps VK5EF keeps a sideband register. This register is a record of those of us in this country who are using the modern method of phone transmission. As at the end of January, 1963, the number of s.s.b. stations by States makes interesting study. We cannot vouch for the accuracy of these figures (they are always increasing), but they are as correct as Comps can ascertain:

VK1	4	VK6	15
VK2	113	VK7	5
VK3	97	VK8	2
VK4	32	VK9	5
VK5	36		

N.S.W. is still holding a healthy lead. Are you sure that your call is in the Sideband Register? If not, send your card with brief details of your equipment on it to Mr. E. C. Daws (VK5EF), East Terrace, Gawler, S.A.

BOOK REVIEW

The A.R.R.L. has published the third edition of their popular "Single Sideband for the Radio Amateur". I am sure that this edition will be just as sought after and as useful as the last two have been. The manual is still a digest of articles that have appeared

in "QST" and while retaining quite a few earlier items on basic theory, many new articles have been included.

The chapter headings are the same as the previous editions but the material is very much up-to-date. The 7360 tube is given full treatment, modifications to old faithfuls like the Sideband Package and W2EWL phasing generator follow the original articles. Several new linears appear and the v.h.f. gang are not overlooked.

If you regularly receive "QST," you will not find anything new, but it

certainly is convenient to have all this excellent information between two covers.

If you are a newcomer to s.s.b. or thinking about joining the ranks of a large number of satisfied customers, you should not be without this new addition to the Amateur library, the latest and most modern sideband manual yet published.

My copy came direct from A.R.R.L. West Hartford, Conn., where the price is \$2.00 (U.S.). It should be available in Australia by this time at about 30/- per copy.

TWO NEW AWARDS

The Kroatian DX Club has among its members the foremost DXers in that area including ZS4MG, ZS4IO, ZS4U, ZS4LK and ZC4CO. In order to recognize outstanding achievements and all round operating ability in the DX fields in both phone and c.w., the Club has instituted two awards.

6 X 6 AWARD

To qualify for this award applicants must have proof of QSO with six different countries on each of the six continents. Of these six countries, three must have been worked on phone and three on c.w. (18 different countries on c.w. and 18 different countries on phone). Suckers are available for 12 x 12 and 18 x 18 under the same conditions as above, i.e. half to be worked on c.w. and half on phone. The 6 x 6, 12 x 12, and 18 x 18 are recognised by the Certificate Runners' Club as three separate awards.

6 IN 6 AWARD

This award is for working the six continents within a period of six hours and is available

on a c.w. only or phone only basis. Each award is given for one band only—no mixed band working is allowed. Therefore the following different awards can be claimed: 28 Mc. phone, 21 Mc. phone, 14 Mc. phone, 7 Mc. phone, 28 Mc. c.w., 21 Mc. c.w., 14 Mc. c.w., 7 Mc. c.w.

No contacts made during any contest will be allowed and the application must be endorsed to that effect by the applicant.

For both the 6 x 6 and 6 in 6 awards, it is not necessary to send any QSLs if the application is countersigned by two other Amateurs, or Radio Club official, that the QSLs have been seen by them. However, the Kroatian DX Club reserves the right to request any QSLs.

Both these awards are also available to Short Wave Listeners under the same conditions.

The cost of each award is five I.R.C. by surface mail or 10 I.R.C. (1 dollar in case of U.S.A.) for air mail.

For both awards apply to the Secretary, Kroatian DX Club, P.O. Box 378, Kroatstad, South Africa.

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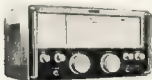
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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-5326, 7 a.m.-4 p.m.)
35 Whynot Street, West End, Brisbane, Qld
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

While 7 and 14 Mc. remain fair with some good DX workable, 21 Mc. has been a disappointment. It would seem that for the next few years, again on this band will be few and far between. Prediction charts show that this band should be OK for DX during daytime, but these charts are drawn up on the basis of higher power and a lower antenna radiation angle than those of the QRP era. QRP men are not going to be able to make much of this band. We are workable at night around 1600z, but QRN is a great handicap on this band.

NOTES AND NEWS

Danny, using prefix FWIDW, is doing a 15-day stint from Wallis Is. Commenced 12/1/62. By the time this is read he will probably be in Suva in conference with the Yasmine Foundation, re the future of his world travels.

Steve VK0VK has cranked up from Antarctica. His 40 and 30 mhz sigs are very good here, QSL via Steve's home QTH at Tweed Heads.

VK9NL is said to be active during all Feb. from Heard Is. Mode c.w. only on 7 and 14 Mc. This, however, has not been confirmed

TUAT, TNEAF, SRACJ, FBZZZ, FBXX and many other prefixes are easily workable each night on 14 Mc round 1400z. Africa has been providing some really rare ones these past weeks.

The AP boys have made their appearance on 7 Mc Regularly heard are AP5CP, AP3AM, AP5JA, AP5SS, etc. They are in East Pakistan and a new country. All QSLs go via 4444-7777.

40 mx still provides some rare prefixes each night: BR8CJ, KP4AZ, VQ1QDW, VQ8W, BA2TC and several VS8s are but a few on

George, ex-ZCSF, says he will soon be on as VRSCF (From VK2ZR.)

Still receiving queries on AC4AX, purportedly in Tibet. He is to be found around 14025 kc. after midnight, our time, with T5 note. He requests QSLs be sent to Bex 534, New Delhi. He may be authentic, but the present Sino-Indian dispute would seem to make this unlikely.

FOXL works both 21 and 14 Mc. He is one of several FQs active at the moment.

SLIRO and SLINE are from Sierra Leone. I have heard the former, on 7015 kc. at 1930c.

The DX fraternity in Australia will be sorry to learn of the death, on 19th January, 1968, of William P (Bill) Petersen, W0F7Y, Bill, who was most active on 10 metres, visited Australia some five or six years ago. He was 63 years of age.

ACTIVITIES

Ken VIKSTL wkld. these. 14 Mo. c.w.: CR-
SAC (Timor), DLAU, DM3, EAT, ETAPP
(1939), FRZD, HA3-A, HD3, HLT, LZ3, SL-
65H, SM7, SP2-S-9, SVOWZ Crete), VTAL,
UA3-A, VU2, YF3, YK9A, (Cococ), VQ3W
(1939), VU2, YQ3, YS10, YU1-3, YV4, ZE1-2,
YV4, ZE1 2 Z51, LX4 SB4TC (1425), SBAFS
(1920) SOLMT (1436), 14 Mo. phone CE4FH
DJ3-8, DL1-3, EP2AC EP293, ET3JK, ETL3M,
G6. HRI, HCL, MPWR, QAA, PR4AT, SVIAR

13RJR 155M50 KPLS, URM, JIN, SYDRA,
 15ASTW, SA5BP XE2, UUITU (U.N. Gedeira)
 Frank VKXJG logged the following: 3.5 Mc
 c w JAILK, JAILN, WSDZF/KM6, KIRAFS,
 WJME, WJQKT, W4KVX, W4ZYS, W4ZYQ,
 WJLGG, WSEJT, W6GYH, W6WB, WIKIP,
 W8CWM, W6OKJ, WJLW, WJHWQ, VETHAZ,
 W5AK, W0FDL, VEJZZ, VESAJ, VESNK,
 Mc c w FUDW, 3.5 Mc c w VJLJA, JH
 SPD 31 Mc c w FUSA4, JLSKE, QSL8
 CR8AC, ZD9JZ, ZC8ST, VJLJA, V8LJ

Ted VK3JZ has been active on 80 mrx and wkld. a large number of Ws, amongst other stations, all between 8 and 10 p.m. local time. 80 mrx c.w. JATLK, ZK1AR, WVCWA/KHE, JASAK, W1BU, H1SKH, VREDK, WZQGT, W4LVV, W4LHN, K8BPR, W6RW, W6VF, K65XA, W6ISQ, WTUY, W4JIN, WBEWC, MONTH.

WDJZH.
Leigh VK4RH, who runs an HT32 barefoot,
QRP s.s.b. sends in a nice lot. 7 Mc. s.s.b.
G3DO, JA1BAY K0UKN, K5JOP, W9JLH,
G6PO, G11VJ W6SNR, K4NJR, W6KZ5, W4-
AXZ, W5LKN K9ELV, K9SEVT. 14 Mc.
s.s.b.: 5M5XQ G1NUN H4SO 5M5NM

G4JW, CNEFK, KBEHA, KC4UHX, GD9GMH, KCGAED, GHRY, FTILM, GRFO, DLEA, G3MLA, G3BM, HDCE, HBRMQ, OH3PC, P7AS, UADSE, SM6H, ONATC, EP2AD, C23RC, VR9D, G4DWE, G3PM, OZ4WO, F3II W4SG, HILRC, ULBAG, V58RH, PA6FE, DILON, G3OGE, PA9K5B, GHKW, G3BTA, 14 Mc. a.s.b.: OZ8KG, UDKAR, ZMGAW, SM7AC, YALAW, HU7TL, OEIME, EP2RG (ex ZL4JA), 21 Mc. a.s.b.:

Pete WIA-L8021 reports conditions poor, but 80 mx bright around 1000x. DX heard on 18 mx. a.m. G3NEO, JAIADD, VS1FX, VS1GC, VS4RS ZELJA, ZE1JD ZL3ALO, ZS1CD, ZS-4427, ZS-4428, ZS-4429, ZS-4430, ZS-4431, ZS-4432, ZS-4433, ZS-4434, ZS-4435, ZS-4436, ZS-4437, ZS-4438, ZS-4439, ZS-4440, ZS-4441, ZS-4442, ZS-4443, ZS-4444, ZS-4445, ZS-4446, ZS-4447, ZS-4448, ZS-4449, ZS-4450, ZS-4451, ZS-4452, ZS-4453, ZS-4454, ZS-4455, ZS-4456, ZS-4457, ZS-4458, ZS-4459, ZS-4460, ZS-4461, ZS-4462, ZS-4463, ZS-4464, ZS-4465, ZS-4466, ZS-4467, ZS-4468, ZS-4469, ZS-4470, ZS-4471, ZS-4472, ZS-4473, ZS-4474, ZS-4475, ZS-4476, ZS-4477, ZS-4478, ZS-4479, ZS-4480, ZS-4481, ZS-4482, ZS-4483, ZS-4484, ZS-4485, ZS-4486, ZS-4487, ZS-4488, ZS-4489, ZS-4490, ZS-4491, ZS-4492, ZS-4493, ZS-4494, ZS-4495, ZS-4496, ZS-4497, ZS-4498, ZS-4499, ZS-4500, ZS-4501, ZS-4502, ZS-4503, ZS-4504, ZS-4505, ZS-4506, ZS-4507, ZS-4508, ZS-4509, ZS-4510, ZS-4511, ZS-4512, ZS-4513, ZS-4514, ZS-4515, ZS-4516, ZS-4517, ZS-4518, ZS-4519, ZS-4520, ZS-4521, ZS-4522, ZS-4523, ZS-4524, ZS-4525, ZS-4526, ZS-4527, ZS-4528, ZS-4529, ZS-4530, ZS-4531, ZS-4532, ZS-4533, ZS-4534, ZS-4535, ZS-4536, ZS-4537, ZS-4538, ZS-4539, ZS-4540, ZS-4541, ZS-4542, ZS-4543, ZS-4544, ZS-4545, ZS-4546, ZS-4547, ZS-4548, ZS-4549, ZS-4550, ZS-4551, ZS-4552, ZS-4553, ZS-4554, ZS-4555, ZS-4556, ZS-4557, ZS-4558, ZS-4559, ZS-4560, ZS-4561, ZS-4562, ZS-4563, ZS-4564, ZS-4565, ZS-4566, ZS-4567, ZS-4568, ZS-4569, ZS-4570, ZS-4571, ZS-4572, ZS-4573, ZS-4574, ZS-4575, ZS-4576, ZS-4577, ZS-4578, ZS-4579, ZS-4580, ZS-4581, ZS-4582, ZS-4583, ZS-4584, ZS-4585, ZS-4586, ZS-4587, ZS-4588, ZS-4589, ZS-4590, ZS-4591, ZS-4592, ZS-4593, ZS-4594, ZS-4595, ZS-4596, ZS-4597, ZS-4598, ZS-4599, ZS-4600, ZS-4601, ZS-4602, ZS-4603, ZS-4604, ZS-4605, ZS-4606, ZS-4607, ZS-4608, ZS-4609, ZS-4610, ZS-4611, ZS-4612, ZS-4613, ZS-4614, ZS-4615, ZS-4616, ZS-4617, ZS-4618, ZS-4619, ZS-4620, ZS-4621, ZS-4622, ZS-4623, ZS-4624, ZS-4625, ZS-4626, ZS-4627, ZS-4628, ZS-4629, ZS-4630, ZS-4631, ZS-4632, ZS-4633, ZS-4634, ZS-4635, ZS-4636, ZS-4637, ZS-4638, ZS-4639, ZS-4640, ZS-4641, ZS-4642, ZS-4643, ZS-4644, ZS-4645, ZS-4646, ZS-4647, ZS-4648, ZS-4649, ZS-4650, ZS-4651, ZS-4652, ZS-4653, ZS-4654, ZS-4655, ZS-4656, ZS-4657, ZS-4658, ZS-4659, ZS-4660, ZS-4661, ZS-4662, ZS-4663, ZS-4664, ZS-4665, ZS-4666, ZS-4667, ZS-4668, ZS-4669, ZS-4670, ZS-4671, ZS-4672, ZS-4673, ZS-4674, ZS-4675, ZS-4676, ZS-4677, ZS-4678, ZS-4679, ZS-4680, ZS-4681, ZS-4682, ZS-4683, ZS-4684, ZS-4685, ZS-4686, ZS-4687, ZS-4688, ZS-4689, ZS-4690, ZS-4691, ZS-4692, ZS-4693, ZS-4694, ZS-4695, ZS-4696, ZS-4697, ZS-4698, ZS-4699, ZS-4700, ZS-4701, ZS-4702, ZS-4703, ZS-4704, ZS-4705, ZS-4706, ZS-4707, ZS-4708, ZS-4709, ZS-4710, ZS-4711, ZS-4712, ZS-4713, ZS-4714, ZS-4715, ZS-4716, ZS-4717, ZS-4718, ZS-4719, ZS-4720, ZS-4721, ZS-4722, ZS-4723, ZS-4724, ZS-4725, ZS-4726, ZS-4727, ZS-4728, ZS-4729, ZS-4730, ZS-4731, ZS-4732, ZS-4733, ZS-4734, ZS-4735, ZS-4736, ZS-4737, ZS-4738, ZS-4739, ZS-4740, ZS-4741, ZS-4742, ZS-4743, ZS-4744, ZS-4745, ZS-4746, ZS-4747, ZS-4748, ZS-4749, ZS-4750, ZS-4751, ZS-4752, ZS-4753, ZS-4754, ZS-4755, ZS-4756, ZS-4757, ZS-4758, ZS-4759, ZS-4760, ZS-4761, ZS-4762, ZS-4763, ZS-4764, ZS-4765, ZS-4766, ZS-4767, ZS-4768, ZS-4769, ZS-4770, ZS-4771, ZS-4772, ZS-4773, ZS-4774, ZS-4775, ZS-4776, ZS-4777, ZS-4778, ZS-4779, ZS-4780, ZS-4781, ZS-4782, ZS-4783, ZS-4784, ZS-4785, ZS-4786, ZS-4787, ZS-4788, ZS-4789, ZS-4790, ZS-4791, ZS-4792, ZS-4793, ZS-4794, ZS-4795, ZS-4796, ZS-4797, ZS-4798, ZS-4799, ZS-4800, ZS-4801, ZS-4802, ZS-4803, ZS-4804, ZS-4805, ZS-4806, ZS-4807, ZS-4808, ZS-4809, ZS-4810, ZS-4811, ZS-4812, ZS-4813, ZS-4814, ZS-4815, ZS-4816, ZS-4817, ZS-4818, ZS-4819, ZS-4820, ZS-4821, ZS-4822, ZS-4823, ZS-4824, ZS-4825, ZS-4826, ZS-4827, ZS-4828, ZS-4829, ZS-4830, ZS-4831, ZS-4832, ZS-4833, ZS-4834, ZS-4835, ZS-4836, ZS-4837, ZS-4838, ZS-4839, ZS-4840, ZS-4841, ZS-4842, ZS-4843, ZS-4844, ZS-4845, ZS-4846, ZS-4847, ZS-4848, ZS-4849, ZS-4850, ZS-4851, ZS-4852, ZS-4853, ZS-4854, ZS-4855, ZS-4856, ZS-4857, ZS-4858, ZS-4859, ZS-4860, ZS-4861, ZS-4862, ZS-4863, ZS-4864, ZS-4865, ZS-4866, ZS-4867, ZS-4868, ZS-4869, ZS-4870, ZS-4871, ZS-4872, ZS-4873, ZS-4874, ZS-4875, ZS-4876, ZS-4877, ZS-4878, ZS-4879, ZS-4880, ZS-4881, ZS-4882, ZS-4883, ZS-4884, ZS-4885, ZS-4886, ZS-4887, ZS-4888, ZS-4889, ZS-4890, ZS-4891, ZS-4892, ZS-4893, ZS-4894, ZS-4895, ZS-4896, ZS-4897, ZS-4898, ZS-4899, ZS-4900, ZS-4901, ZS-4902, ZS-4903, ZS-4904, ZS-4905, ZS-4906, ZS-4907, ZS-4908, ZS-4909, ZS-4910, ZS-4911, ZS-4912, ZS-4913, ZS-4914, ZS-4915, ZS-4916, ZS-4917, ZS-4918, ZS-4919, ZS-4920, ZS-4921, ZS-4922, ZS-4923, ZS-4924, ZS-4925, ZS-4926, ZS-4927, ZS-4928, ZS-4

NJ, Z3ST4 Z3MATF, Z56AYV, Z56AYW,
Z5608, 435TV 15 mx c w JAJJBD, KR5NA,
OKIGT SP8KC Z5SJB, Z53KI 15 mx a.s.b.
VKD85 V58MB Z51JU Z53KI 20 mx a.m.:
HBA7, VQ6BL, V5IGZ, ZL3BU 20 mx
a.s.b. SP2AC, ET3LM, G2HFD, KC4USG, KR-
ZJL, MF4FW, V58MB, KR6KC/MM, W4SD8
MM 40 mx a.s.b. DUJAY, DU1SF, D1MR,
DUE8G, D0BF6, 9M2DQ 40 mx a.s.b.
DJ1FN, D44AX, D018P, HA3GC, HB8AA,
HB5EU, HM4AQ, JAJ, 2, 3, 6, KC6NAA,
ZL1KDA, OK3GR, OK3AL, 5L8AY, SP5AL,
UA2KAR, UA3PH, UA6FF, etc.

Eric BERSIUS has concentrated on 7 Mc. of late. He recorded these c.w. stns.: BY1PK, CT3AB, F88ZZ, CR7LZ, CNRMZ, F6WDW, VQ4JGW, VQ3W, HNM8F, EASAM, ST4R, VQ4V, UFF6F, UHAKA, I1ZM, UI4ZA, U7LXK, UHAKAA, UO5PK, U2PKLK, UGDKAA, YV4BJ, ZB1CR, ZSJ5F, Z5GALK, SX5TU, 4X4KK, etc. QSLs recd.: EP1BK, UG6KAA, V84RS, ZB1BV, 5B4TC.

John VKZRR, previous editor of this page, also now editing again and worked 53 countries in 1977. He is now working in the U.S.A. Here is the list, 20 mx cw.: APSAH, BVJUSE, CE4AD, CR5AC, DJD5D, FKRA5, GUPF, GM-CK5T, GWZK, HB8NE, HMLAB, HLIT7, HK3RO, I1D1Z, JAKRI, JTKAA, K5GAI, K5KCB, K5CCE, K5RMO, K5RAG, K5RAN, K5VCI, K5XBA, LASYH, LZ1KA, OAMC, OZLIE, OHKXV, OKIGL, OZ4H, PAQPU, PY5AS, SP8UR, UBSUW, UCKKA, UHNKA, UUTG, UPCSJ, URRKAN, UWENE, UWUW, YV5BB, YV5B, YV5C, YV5D, YV5H, YV5L, WANIX, XE1VI, YOSRW, YV5V, ZL-GRH, ZSEEN, SMPTT

Roy VK5RA reports that 80 mhz is picking
up when GRN permits. 3.5 c.w.: KH5ARL,
V7AGT, VE1ZZ, W6XJ, KV4CI, JA1GFC,
JA5LH 7 Mc c.w.: DL1DV, G3PTT, W1WJN
(long route) 14 Mc. c.w.: Z86AJQ, UA2KAW,
KC6BO (Palau), C8JAL, UB5AR, UD6 UL7,
UL4 UJ8 UM8, CX1OP, H3SPD, CP3CN,
SB4TC W5KC (long route) DL5SK (fr.) 14
Mc ssb EA3JE K6CQV K36, YV5BNW,
UA6FD, M46BBW ET1LM 21 Mc ssb MP-
TAC P21CJ U5FBF YQ3RD UP1NM QSL
cards from KC4US KC6BO, UR1AR, FA3W

UP2VN ZC5FF, ZC4TP
Yours truly, VK48S, wkld. 7 Mc.: VS1BU,
KP4AZ (long path, 1944s), FWIDW, VKQVK,
VQ1DGW, VQ2W, FENB, VSSARK, VSSAAA,
LZ1KGZ, YU1BCD, DL4CV, VU8MB, UPCA,
HM4AQ, AP5CP, AP5JA, On 14 Mc. AP5CP,
AP5JA, AP5SS, AP5AH, T7AL, T8IAP,
SB4SS, VK8LA (Cocos Is.), HK3LX, VQ8BT,
VKQVK, FWIDW

Rev. VK8HL, despite poor conditions, managed to skim off some good ones. All 14 Me.
c.w.: AP5AN, AP3JA, CE3BD, CR7Z, CR9AC,
DIQX, DL7GP, DM3ML, EP2EQ, F6MA,
F6BXX, KH6KS, G3AAE, G6WF, HB5LN, JT-
KRAA, LUINE, LUBFA, O4MCO, OK1JO, OR-
KKA, SP6HJ, SP6WC, ST4R, VQ7FC, VQ4C,
V54KH, YG7DL, ZL0WU, ZL0WY, ZL0WZ,
Y6BK, Y6BHC, ZK2JW, ZD8OL, ZS9GC, 5B4TC,
5PHCT, 5OIND, 45TEC, 4X4WP, 4X4OW, and
many others worked and heard.

Rick VEARK is still on 14 Mc. after 25 years of Hamming, he says conditions surely aren't what they used to be. He wkld. the following rare ones during December, all c.w. and times GMT: **K1JK** 1925, **H1HCZ** 2014, **VPSGT** 0450, **VQ9HR** **VPSRG** 1130, **5A1TW** 1625, **5U7AC** 2300, **A2PZR** 1233, **K8BCA** 0920, **MP4RDX** 1125, **P3JAD** 1140, **SVGWZ** Creta 1530, **ZB1RX** 1545, **5B4RF**, **3V8CA**, **5WEDD**, **601MD** all round 2000, and others.

Letters and laments from the following:
Frank VEJACF has not pressed the key
since coming home from S&B, but will be
active soon. He says that KP4BDN is want-
ing C&Ss from VKK, NLC, 245TH, 245TH, 245TH

HC--so please boys, his QTH is Luis M. Cabrera, 18 Betances St., Hato Rey, Puerto Rico. Sven SLEZO writes that he wants QSOs with VK3 and a QSL from VK5QR. He hears VK2IYA at 37 on 40 and 80 a.h.; also says that VKs are slack with QSLs.

Ted VK3JE put pen to paper about Ham's these days being Award-Certificate happy. He says that "A.R." run the details of an award or two in each issue. (Award hunting is Amateur Radio's newest fashion. Ted OM, and as yet, its influence, for good or bad on the game cannot be estimated. However, obtaining the top class awards are a worthy

Overseas news is a little light on, this month. Conditions were very bad on sked times and there is no mail to hand from W4CKB Florida DXer

Once again, thanks to all those mentioned above and several others for their help with this DX page. Keep writing, please. 73, Al VK4SS.

P.S.—I can always get a laugh out of the compilation of this news. My good YF, when typing VK6RH's rig description, i.e. "Leigh runs an MT3 barefoot" asked me, "Does he pedal it?" (Shades of the Inland or Tennessee Hillbilly, hL.) (No offence Leigh OM.)

☆

CAMEO ON AMATEUR RADIO IN U.S.A.
Here's a word picture of Ham population versus spectrum space over the past thirty-five years.

Before 1927 U.S.A. Hams had 1,000 kc. on 7 Mc. and 2,000 kc. on 14 Mc. After 1927, it was reduced to 300 kc. on 40 mc and 400 kc. on 20 mc. At this time there were 17,000 Hams. By 1933 the number of Hams was 43,000.

Que Vadis? — VK488.

W.A.Z.
(as at January 1963)

W.A.Z.

(as at January 1993)

W.

VKIAM	VKGCK	VKIAL	VKIMF
VKIACQ	VKIEK	VKIDO	VKINQ
VKLAPE	VKIEH	VKIEL	VKISR
VKZDI	VKJLE	VKIFJ	VKISRK
VKZNS	VKJNC	VKIKR	VKISD
VKZNS	VKJRC	VKISD	VKIKW
VKHPV	VKJRP	VKITY	VKISU
VKJQL	VKSYD	VKJES	VKISSA
VKJES	VKSYL	VKIKO	VKITH
VKJCN			VKTLZ

CAFJ VK4RQ

ALZ. DIS.

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components!

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Hi there fellow dial twisters! This month I would like to say a word or two to the newcomers to the 3.5 MHz band.

When you first begin to send out reports to a station, do not be too hasty to get that report out without first considering whether your report contains enough detail. Make sure your report contains the following: Time (QMT should be used when reporting to an overseas station), day, night or time zone. Your report should contain information of the QSO that you heard. Also if possible, the signal report that the transmitting station gives to the station he is working, and any other details of the transmission that you consider would be of interest.

Be courteous and friendly in your report. Give details of your equipment and of your location. A self addressed envelope is always appreciated. If you are sending to an overseas station, suggest that where possible to include an international reply coupon.

There are times when a station may be having trouble with his rig, if so report what you hear in a station is not an S3 to 6, well give him that report, and not an S3 to 6. Naturally he will appreciate an accurate report. We take a very adverse view of false reports being sent to stations.

What has become of many of you fellows that used to send us reports? We are getting No doubt some of you now have call signs, but there are many that have not. But even if you are on the air, don't let this prevent you from writing to us now and again.

It has just occurred to me that if there are enough of you who listen on the v.h.f. bands, how would you like us to start a v.h.f. ladder as well as our usual DX ladder? Anyway, fellows, let's have your ideas on the subject.

VICTORIA

Maurie, our President, Ron Young and Ian Thomas have been out on the Ross Hull Contest. Ron recently put up a cubical gain for 30 dB and was pleased to see that the DX ladder threw up a solid digit 30 ft. high and has really been putting in the DX on it.

The DX ladder has really been giving a shake up to the DX boys in Victoria. He has been getting something like four new countries verified each month. An interesting one heard on the other day at 14.1 MHz was Z50VX who was mobile in 231 land. But generally conditions have been very poor on the DX bands. Several interesting Russian stations have been heard on the short path at an evening. Those of you who do not listen to a.s.b. and only to a.m., are certainly missing out on much DX, plus the fact that the QRM position is far less than with a.m.

At our monthly meeting it was decided to start an organised monitoring of the bands. The first run was covered 7 Mar. The idea being to listen on the band every Sunday for a month between 7 and 7.30 pm. Then we will compare notes at the next meeting. It certainly is a good idea of yours Tom, and we hope to have further activities along these lines providing we have good support from our members. Go to it to chase and see what you can hear. We were pleased to welcome two new members at the meeting. They were Michael and Peter. Please let us hear from you with us boys and hope to see you at our future meetings.

Craig Cook has taken over the position as publicity officer. He would very kindly send any news you have for the weekly broadcast directly to him. Any news at all will be very much appreciated. I can assure you, so go to it and let Craig know what you have been hearing.

It has been decided to hold our Convention now in April. Due to a number of reasons, the main one being that as the State Convention is being held in March, we felt that it would be best to have ours a little later. I feel that if I have not received any information on your scores after a period of three months, I think it is only fair your name be withdrawn from the ladder until I hear from you again.

INTERSTATE ROUNDUP

Chas Abernathy has recorded a good score in the Ross Hull Contest, however he tells me he has been encouraging a friend of his who is a newcomer to the a.w.l. ranks, and he (the newcomer) amassed a much higher score in

the Contest. Nice going there young fellow and with a score like that you fully deserve to win the Ross Hull. It is very good of you Chas to give your time to encourage the newcomers to the a.w.l. ranks. Chas has the distinction of possibly being the first a.w.l. in VK to have confirmed all ZL districts on 50 Mc. Nice work, Chas, and congratulations. Recently Chas received his certificate for the 1961 R.D. Contest.

Eric L3043 has recently returned from a holiday in VK8 and reports that he and his XYL had a very good time. Recently Eric received the D.E.R.U. award for being the outstanding a.w.l. for 1962. Congratulations on such a wonderful effort. Eric received 562 QSLs last year from 168 countries. Many thanks for your very interesting letter, Eric.

Noel Harrison, L3101, despite his recent illness, comes up with a DX list. DX heard. Noel assisted JWC to erect his Thunderbird TM4 recently. At present Noel is flat out learning c.w. So watch Eric for some competition from Noel in the future. Noel's rig is working very well on a.s.b. and some good DX has been heard. Noel reports that EA4GE was his only QSL for the month. While your scribe only received ZL1ABZ from the Kermadec Islands. Noel is one of the few people that has managed to obtain a QSL from W1BCR - this card is some 25 years old and is rather an antique.

Our good friend Peter Drew, L8621, has been busy battling with the DX on most of the bands over the past month. Peter latest at night on both 7 and 3.5 Mc., however he is finding the QRM rather a problem and as a result he has been QSYing to 3.5 and listening to the Ws. How do you manage to put up with the static at this time of the year, Peter? He has been kept busy with letters from a number of American a.w.l.s, and Hans. Very pleased to hear from you Peter and keep up the good work. Now come on you other Sandgroppers, how about giving Peter some support?

So until next month, 72, Mac Hilliard.

RE LAUREN

	Countries		Zns.	S.B.	W.
	Conf.	Hrd.	Conf.	Hrd.	Stat.
E. Treblecock	277	253	60	—	80
D. Grenley	113	308	36	16	97
A. Wescott	24	158	31	8	107
M. Hilliard	71	215	33	13	120
M. Cox	63	230	29	30	135
C. Abernathy	44	55	27	—	14
P. Drew	185	27	15	11	11
N. Harrison	40	108	37	8	14
I. Thomas	80	134	10	8	85
F. Fields	25	133	—	—	—
J. Jenkins	10	133	—	—	—
H. Burger	6	168	8	1	19

YOUTH RADIO CLUBS

Y.R.C. fortunes in VK8 go on to greater and greater strength, especially now that the High Schools have resumed activity. Note the facts—more than 40 clubs, 60 elementary certificates, 6 junior certificates, 3 A.O.C.F. (and four more probable), but this in VK8! I am making enquiries in other Divisions to check my information—you may have to pardon my vitriol.

Hint to Club Leaders. Fathers don't take kindly to laying out \$10 or so for a boy to start a hobby—boys commonly give away other hobbies in a few weeks. Try to get all the old but serviceable parts you can store. Radio service shops will help by giving you old sets normally thrown on a rubbish-heap, provided you guarantee not to do them out of any business. You can assume any place handling electronic equipment has something to throw away. Finally, issue it free to genuine experimenters and write it in a book and call it back if it is not properly used.

News jottings: The first VK8 registration of a Y.R.C. is the first Kalamunda Boy Scout Group—probably a transmitting type club with assistance from local Amateurs. Let us know about it—and stir up some others.

Auburn (N.S.W.) Senior Scout Group hopes to start a Y.R.C. to supplement Scout training, with assistance from Stn. VK8AMQ.

We're proud of the scholastic success of our members—Commonwealth Scholarships to George Barnes, of Caringbah, and Vince O'Donnell, of Wabroons (N.S.W.), son of Tom VK8OD. There must be more, so let us know about them.

VK8EQ says Port Pirie Amateurs are forming a radio club and propose starting a Y.R.C. in the high school. Is there any help at Divisional level?

Barris VK4AN is starting a Y.R.C. in a Gympie (QLD) Boy Scout Group.

Frank VK4IZ, who established the Y.R.C. at Bass Hill (N.S.W.) High School, is now in Armidale and proposes to repeat the pleasant experience in a Boy Scout Group.

Don Reed (ex VK2DR), now Government Radio Officer on Christmas Island, Indian Ocean, proposes to start a Y.R.C. for Chinese and Malaysian lads and correspondence with Y.R.C. members in VK would be a great help. Don's new call sign is VK8DR.

72, de Ken VK1KRM.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Jack Kent, ET3XQ (home call WMCMB) gives the following details of the set-up at Adde Ababa. He is to be high for the 18 months and is using a quad 53 ft. tower. The QTH is 6,000 ft. above sea level. His QTH is direct line to P.O. Box 634 and if a direct reply is desired an I.R.C. must be enclosed. They QSL 100%, but via Bureau unless an I.R.C. is supplied. An alternate route is via Rio de Janeiro.

Recent changes in the A.R.R.L. Bureau set-up are: W.E.S. Ray Birren, WPMSC, P.O. Box 516, Kluhurs, Ill. VE3, R. H. Buckley, VE-2UW, 79 Almond Rd., Downsview, Ontario.

Geo. Barrett, 5B4IF, advises that the Cyprus QSL Bureau is located at P.O. Box 216, Parnassus, Cyprus.

The Tiger A.R.C. advises of the following new Awards: WAT for two-way communication with four of its members after 12th Aug. 1963. Certified Hat with 13 I.R.C. is required. Present members are APSCF, JA, AH, 5B, WA, AP, Confirmed contacts with nine Pakistani stations (since 12th Aug. 1963) located in West Pakistan, and four members of T.A.R.C. in East Pakistan. Cert. Hat and 13 I.R.C. for this is sent by mail to Mohd. APSCF, Decca Signals, Decca 6, East Pakistan.

The following is the dope on the Yaesu foundation which is a non-profit corporation. The Yaesu foundation is, in support of the Yaesu DX-pedition, now under way. A five dollar contribution, sent to KV4AA or WVEWS will bring you the Yaesu Newsletter each month for one year, keeping you abreast of all Yaesu moves and plans, plus other DX news. Members contacting the expedition have their QSLs answered by mail, supplied with QSLs, by airmail, while non-contributors receive their own QSL back, rubber stamped to confirm contact.

Cards handled at the Federal Bureau during January totalled 6,536, which is the highest monthly total since May 1960. Bill Kent, ET3XQ, is currently signing VRIEX at Deuba, Fiji, where he has a beach home. He is returning to U.S.A. in March, but coming back to VRI in October. VRI is QRV on 3.5 Mc. band from 1900 to 2000z daily for DX contacts.

The Philippine Amateur Radio Association (Philippine Amateur Radio Association) (Advancement) advise the new business and QSL Bureau station is 1944 Requena, Sta. Cruz, Manila, Philippines. Tony, W6SL, Manager, is known as "Dick". Claro, DU1CE, The "Pioneer Gem," currently in Australian waters offers a quick way towards M/M certificate entitlement. He is based at three active Hamas-Gorge WNI2AAV, Ed. K3OZU and Yarnia K3BUK who may be found on c.w. around 11.10z, plus, with the Federal Bureau.

For his forthcoming visit to VK during WFFCC, he is as follows: Sydney, April 1-4, Albany, 10, Newcastle, 11, Adelaide, 12, Perth, 13, (VK3BO), April 17/22, Melbourne (VK3RJ, VE-XB), April 23/24, May 1. A short stop-over in XH8 is envisaged.

Ray Jones, VE3RJ, Manager.

NEW SOUTH WALES

The Australia Day week-end was a very busy time for the N.S.W. Division, being the Annual Field Day and Convention. We started the week with the general meeting on Friday night where an attendance of approx. 85 heard Ron 2ALR lecture on "Modern Trends in Commercial Equipment". Ron gave a very nice commercial sideband rx on display but his lecture, illustrated by slides, was most interesting because he gave the reasons, technical and economic, why the commercial firms incorporate ideas and circuits in their design and discussed the advantages and disadvantages of mechanical sideband and sideband operation. The sideband boys learned a lot while the "ancient modulation" boys realised that they had a lot to learn.

On the Saturday night, a Dinner was held at Wireless Institute Centre where approx. 60 Hams and XYLs were welcomed by the President, Max EPP, and the Executive Committee, with cocktails and savories, while everyone met everyone else and had a good ragchew, then at 8 p.m. Max took the chair and declared the dinner "on".

Speeches, not being popular at any dinner, were kept short, but a special welcome was extended, to 12th, WBBMB, and the wife, who, owing to the mishap with the Canberra, found himself stranded in Sydney just in time to attend the T.A. function. Len, in reply, spoke well of the excellent welcome that has been extended to him by Hams during his world tour especially 2LA, and his only regret was that he could not spend three days here.

The Newcastle boys were represented by Bill XXT and Ern ZPF, and the Gosford section by Alex 2AAK, while Tim 2ETM led a group from the V.H.F. and T.V. section.

Noticed among the locals was the Ham family, Ted ZFE, XYL Heather ZHD, and daughter Margarita whose one ambition is to get a call of her own. I have heard Ted working a lot of 7 Mc. mobile, looks like he can't get a go at the mobile rig.

The annual field day was held at the Dural transmitting station with an attendance of 300 adults and many more children. The weather was excellent, if a bit hot, which was a strain on Ken 2XKS who was chief dispenser of liquids. The first event of the day was the 7 Mc. scramble and honours went to Harold 2AAH, with Bill XXT second and Alex ZPF third. The v.h.f. scramble was taken away by Dick 2ZCF with ZPZF second and Eddie 1VP, from the 7th and 3rd, third and 4th, went to Harold 2AAN and Dave 2AWZ second. Dave also won the 144 Mc. fox hunt, while ZPZF was second and ZCF came third.

The blind fold fox hunt proved very popular with the XYLs and harmonics, and the results were: Ladies, Mrs. 2ACK; Gents, 2ALV; Girls, Ricky 2AQK; Boys, John Grouse. The mobile efficiency contest was conducted by the mobile operators to improve the efficiency of operating and points are allotted for efficient use of sideband operation, good technique, neat and road safety. Most points are allotted to road safety, i.e. the operator who can carry out a QSO on the move, keeping both hands efficiently on the controls, to the latest equipment. The winners of this event were Harold 2AAH, 7 Mc.; and Keith 2ZVL, 144 Mc. Second place went to ZPZF, while Eddie 1VP took second prize for 144 Mc.

The V.H.F. and T.V. Group put on a good display of home-made v.h.f. equipment and another section was conducted to the latest commercial equipment. The Council wishes to thank all those who supported the Convention, especially the following: trade houses, Darcy Condensers Ltd., Mullard Aust. Ltd., Lawrence & Hanson Ltd., Amalgamated Wireless Valve Co., E.M.I. Ltd., W.F.S. Electronic Supplies, and Town Talk Ltd. 2Z EVI.

HINTER MOUNTAINS

Once again this month the v.h.f. boys are in the news with some remarkable break-throughs on 50 Mc. Those participating in the increased activity caused by sporadic "E" activity with VFA stations that were heard, ZD 2ZON, BUH XXT, Ian 2ZIF and Mac 2ZMO. Stuart and Ian were successful in working all States and EL on 50 Mc. Mac had so many QSOs with VFA stations that he was unable to get to that part of the world to hand out the QSL cards. Those contemplating activity on the lower bands are: John 2ZJG, Kev 2ZKW and Fred 2ZAP.

Conditions on 144 Mc. have also been good and Muriel 2AIA has been heard at good strength on 144 Mc. and the wife, who is 40 mx. Bill and Bob, should like heart at this end crack on 3 mx as well. Ron 2ALR was heard on 144 Mc. and the wife, who is 40 as well but his box of tricks has developed some malady and he is active only on 144 as I write. Harold 2AIA and Jim 2ZC are still very active on 144 and the indications are they are getting consistent signal reports from all over the Branch area. Rodney 2CN has been busy taking his 144 under a bushel and though very busy on 80.3, he still manages to get contacts on 2 and 40 and as well as pass the T.S.O.C.P., which is really commendable. He is also a member of the T.S.O.C.P. means, then see Rodney, but I can assure you there's no more test involved. Out of working hours, the workmen hired by 2LAQR are just putting the finishing touches to the second mast and any time now Bob will be able to skip up a decent signal, a few wavelengths higher than the first.

the cage round the ladder is only made for a 36-inch waist, so perhaps he'll have to get me to take up the ladder.

Bill XXT and Ern ZPF, with Ern's XYL are at present on a hunt all about the place with the mobile gear. First port of call is to be the radio telephone at Parkes and then via VK3 and VK3 to VK1 and then home. Out in the Charlestown mugs it is interesting to note that since the acquisition of the AMR, 300 nothing has been heard of Norm 2ZNF. I fear that he suffers from the same trouble as me, so much on the bench that there's no room to work. Ron 2AAH about whom we hear occasionally, is shortly to be active on 14 Mc. s.b., where he will be a competitor for Jim 2AHT, the loud voice from the south land. Just now Jim is keeping a bed warm in the hospital, but it is expected that by the time these notes appear he will be back on the air.

The latest activity out in the smog zone of Mayfield is an AMT mod. by Varley 2SF. This is, of course, after he has groped his way out to the shack through the mobile talcum powder so generously supplied by the steel and smoke works, Bill Sinclair, who still waits for the 2 cal. has been a patient of the steel and smoke and erected a 6 over 8 skeleton slot for 2. Gordon 2ZSG has completed the seven-year project which was a four channel audio mixer—that's nearly half a channel a year. Dave 2EZ now works for himself, so we'll probably never hear him outside holidays again up in the coal city Peter 2ALY has just completed his holiday, with 80w. on 144. The biggest Indian, Chris 2PF, must really have been serious about the Mercedes Benz, because it has arrived—a companion for the Telefunken rx. Herwood's modulator troubles have all disappeared and a postcard will speak. You just ask him. On the associate front, Ron Beckley has a new rx which must be a good one because he hears me 2B and Belmont Bob has a strange rx and is unable to identify it may carry it away. The Marmont mob still play loud music at all hours and say they are not on an election, borrows Dennis' "A.R." just to read their names.

And that's the round-up for another month of about visiting the old firm next meeting. We'll all be there at the University College, Rhodes Hill, on Friday, 8th March, at 8 p.m. They are saying it will be a good one, so why not come and heckle with the rest! And don't forget our broadcast, Monday nights, 8.55z at 7 o'clock—you'll hear all the latest gossip. See you both places, 7, 2AKX.

THE BLUE MOUNTAINS SECTION

The monthly meetings have been well attended and the lectures have been of a high standard. Aris 2BSS on transistors and sideband equipment.

On the 21st of March, a Dinner, held at Atchison St. was represented by 2AHT, 2ZNS and 2ADA. The evening was most enjoyable and Don 2AHT received second prize in a tie-tac-tough competition. The following day the Annual Convention was held at Dural and four members from the club, namely, 2QA, 2ZNS, 2ZFE and 2ZNF, were elected the blind fold fox hunt for the Division.

Bill 2TS is getting spliced on 23rd of this month, so our best wishes are extended to

N.S.W. DIVISION, W.L.A.

NTH. COAST & TABLELANDS

ZONE CONVENTION

will be held at

URUNGA

during Easter Week-End

12th to 15th APRIL, 1963

144 Mc. is bent, 40 mx is bent, all the necessary wireless equipment is available.

Accommodation of all types available on application to Mr. J. Walters, C/o. Ocean View Hotel, Urunga.

Bill and his YL. Bill has been heard operating from his new QTH at Orange at good strength. Don AART is preparing for his yearly hibernation to the house for the winter and should be back on 2 mx very soon. Jack ZNC is on every night on 2 mx after fixing up his aerial change-over relay and listening to his transmitter through a newly acquired rx with all the mod. cons. etc.

A late night was held at yours truly's and six members heard two tapes plus slides, namely Quid and V.H.F. Antennae, and it was midnight before the last QSO ended. Keith ZABX answered one of Noel's (ZZNS) many CQs in the early stages of his operating and was at the time his furthest report from the West. Also Noel and Norm ZQA have been working 2 mx duplex with no problems. Jack ZADF has been getting mixed up with Noel on 2 mx duplex also.

Val ZMS and Ken ZAVN are still busy with the bush fire show, but it looks like the real danger period is over. Yours truly has made a mod. to the 7 Mc. mobile so that we now have r.f. with audio instead of audio and some r.f. All Z2FB is back on 3 mx with new gear and is coming through loud and clear. A new heap which I have not reported was obtained by Bob ZASZ and is of the top upper variety, so we should hear a lot more of Bob mobbing the countryside.

The Feb. lecture was by yours truly and dealt with electronic business equipment including slides. TS, ZADA.

VICTORIA

WESTERN ZONE

Activity in the Zone has not been very great, but should improve with the passing of harvest, holidays, and hot weather. Bill ZABKW has an alternator in action and his gear is now running from a.c. supply. Wilson ZAFU has his mobile rig going nicely and his signals have been heard from various parts of the State. Vic ZAEQ has some equipment ready to make himself heard on the 33 Mc. band. Bert ZEF has been in action with both rx and tx and has both bands open and operating on 80 and 20 mc. His first call on 20 mx resulted in a QSO with EFAC. Nice work! Keith ZAKP has been busy with it, but one of these days will blow the cobwebs out of his gear and come on the hook-up. Allan SZL has been working fairly regularly on 20 mc. a.b. and "bag" gear. Ed. All Scazzell, WCCO will be in VK in April and will be staying with Allan at Caliswade for a week. VKSKL have been in contact since 1954 and still maintain weekly sdxs on 40 mc. c.w. All hopes to meet as many of the gang as possible during his stay in this country. Bill ZAKW has been enjoying a visit from his brother, Tom ZFK. Tom is an "old timer" and operated as 3TK around 1930. TS, SZL.

WORTH EASTERN ZONE

During January ZAKC tried his hand at making baluns for 2 mx. It may be recalled that a few months ago John assembled an electronic organ kit; nowadays he spends a little time learning how to use the unit.

After months of waiting, ZAFV finally obtained a vidicon tube and was thus able to finish off a closed circuit t.v. project. The circuit works as per specifications and has now been "bunkered". Understand ZAVT still plodding along on 2 mx exciter. Yarrawonga Club not heard too well here, nor very often for that matter. SCI has erected an antenna on his ex-LV 60 ft. tower. Late in Dec. ZAYD had to pull down the triband quad to carry out repairs. Lesson learned here is not to use single strand wire as strainers or elements. ZAAQ currently portable near Balara, occasionally nets into the Zone hook-up on 20 mc.

ZACD has constructed a "Moonmatch" and early in Feb. was learning how to adjust it. ZASF and cohort, ZEND, are contemplating trying out modulated light transmissions, however gear has still to be assembled and this is the killer. ZJZH ceased Morse practice prior to Xmas and finds it difficult to start again. ZASY sang out one of the 20 WPA of first and intends to be satisfied with single

807. Took a portable 6w to Scout Corroboree at Hobart in Dec., however the location was unsuitable for propagation, only made four contacts.

Shepparton chaps have been busy on plans for the State Convention, to be held there on 16 and 17 March. All members asked please give us a fair go and get your applications in early to the appropriate quarter. TS, ZASY.

MIDLAND ZONE

The festive season is over and by all appearances so is all activity within the Zone almost. This month I have not heard much from the Zone and there is little to report as to members' activities.

Ian ZAAU is active on 20 mx, working some 200, but like myself finding the band very noisy. There has been some short chipping and short-long skip periods intermittently to Europe on the short path in the evenings. 10 and 20 mx are a dead loss at the moment. 40 mx is patchy and noisy and the stations working this band stay in their groups and I find it impossible to attract their attention with my two inputs.

By the time these notes are in print we will have had our quarterly meeting, which will have taken place at 7.30 on 16 March. The evening will be SZLJ, Ian Gorouck. That's about all have this month, so fellows please help keep these notes alive with news of your doings. TS, ZND.

VICTORIAN DIVISION, V.I.A.

STATE CONVENTION

16th & 17th March, '63

at Shepparton

Premier Town of Victoria.

★

Highlights: Buffet Dinner, Visits to Radio and T.V. Stations, Competitions, Tx Hunt, Commercial gear.

Accommodation: 3 hotels, 5 hotels and 2 caravan parks.

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Bookings: Dinner and Accommodation, \$2/12/6 per person; Dinner only, £1/12/6 per person.

★

All bookings must be in by 2/3/63 to Box 205, Shepparton, Vic.

QUEENSLAND

Who was the character that said, "If you put your neck out long enough, and often enough, it will get lopped off"? Well, it's happened to me. I have been elected as someone or something, into being the Sub-Editor for the Sunshine State. Well, it was sunshine when I left for Brisbane. I'm not sure whether it's an honour or not, but I expect I shall get a lot of fun out of writing these notes and keeping you posted on the doings of the V.I.A. I shall be at various places, get news, get news, I'll invent some, so keep me posted, as I have a very vivid imagination, and I would hate Pansy to get the wrong idea about my style. I shall be writing, I expect, and I expect, of course, pre-supposes that someone pinches the Editor's red pencil. (Like h—, Ed.) Now just to say a second word about my essays and make like a Sub-Ed.

The Jan. general meeting was held at the State Service Union Rooms on Friday 18th and was particularly well attended by over members. 83 signed the attendance book. The other eight were probably spies from Southern and South Western States, checking on how a well conducted meeting can be held. Pat KKB was in the chair and business carried on around articles in "QTC" on the Divisional Constitution. Is any member's not clear on the article, please write to Box 638, Brisbane, and he will be put right. Few important business of the general meeting. Don AGP's talk on "Television", and how Don warned to his subject. He really put all his heart into it and drew his audience with him for two hours.

Have you any notices of motion for the Annual General Meeting in April? If so, get them down to Box 638 as soon as possible.

The Ipswich and District Radio Club had a good attendance of 35 members at its Jan. meeting, which was held at the 2nd Ipswich Scout's Hall. A.C.P. was in the chair, presiding with a qualified teacher in charge, and Ron ARG is looking after the Morse angle. Merv ZAGM has been elected as assistant sub-editor to help me with these notes and I am very pleased indeed to have him, because Merv, old boy, I'm going to lay the blame at your feet for any notes that ye Ed. may disagree with.

My young son asked me to check his homework the other night. He was worried because he had to break down words in the Auditorium. He reckoned that it came from two roots, Audio I hear, and Taurus the bull. "No, son," I said, "it was a word that was used a long time ago, although I do believe it is still used in South Australia."

ALZ has returned from three weeks at the seaside and then worked some rare Middle East DX that had accumulated on his aerial in his absence. His only complaint re his holidays was that there wasn't much of human beings. Man, a good fisherman isn't human, he only looks that way. What did you want shore for a few days? Just a shot for luring unsuspecting sandworms to the surface, unless of course, you are ticklish, some people are. I don't know if ZKZ who is the "Printer's Devil" for "QTC" hung up his stocking for Santa Claus and you won't believe it, but he got a new rx. I'm led to believe that Bill never did like the blonde

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Bob Campelli and Ray Rumble, previously of the Southport Radio Club, have offered to organize the 1963 Convention, to be held at Alexandra Headlands on the 29th, 30th and 1st March. It is right on the beach, no cooking, washing up, or any other chores. Bringing the whole family and have a good time. It is a wonderful opportunity to meet your fellow Hams and also get your KVL interested. The cost of the Convention will probably be less this year. And talking about costs, don't forget that your subs are due very shortly, and it costs the boxes covered with the book rack quite a lot. If they are paid promptly, please not to mention that your "A.R." continuity will not be broken.

The traffic police in Brisbane don't take a very kind view of horses and buggy transport, so I had to unharness Cyril (my horse) and ride him solo in order to get around. Bit of a bother trying to work my mobile though. My first complaint was that they don't from Ayer to Brisbane about my mobile. I was told it worked well, all she had to do was sit in the rear of the buggy and work the pedal wireless. It's a good wireless too, all that I have replaced is the pedals. My XYL says that unless I get a better rig for next holidays, I'm not ready to go. Never heard of a valve with those letters.

Noel Lynch, with other Scouters, took some of the V.h.f. Group to Nerang on 3rd Feb. to look over the Easter Venture route, for which the V.h.f. Group, with a 40 mx link, will be doing the communications.

Jim HNZ is still in trouble with the modern bogey t.v.i., but he has hopes of getting it licked in the near future. Jim's KYL, Nell, has been in hospital seriously ill and is now back home. We all hope you feel much better Nell and recover your usual cheery outlook.

Some of the members of the Burdakin Radio Club have taken up flying and are doing quite well at it. Associate member Harold Cieselski is flying solo and is only waiting for his 40 hours to come up. Dale 4ZDG is another who is doing quite well. Ross 4RO is chasing T.V.I., or was, but as he is going on holidays (that word again) during Easter, he is building V.H.F. gear to take with him. Ever

W.I.A. LOG BOOKS

Another cheery bloke I met was Les 4EH who is not a well man by any means. Thoroughly enjoyed my visit with you Les. His XVI makes a good cuppa, too.

TOWNSVILLE AND DISTRICT

Jehn 4DD is still on the band and heard in QSO with the States. Claude 4UX and family have returned from a holiday trip to the big smoke. Are these notes appear I will be calling on the Editor to make a personal complaint why I never received a further zero to my salary, same as that favoured scribe? I am sure that the Editor has the heart to do it on 4th Feb for a trip to the south on Hobart and hope the weather treats me kindly as at present the floods are everywhere.

DUPALUMIN ALUMINUM

Will prevail on Claude to write the notes while I am away on leave, so cherrio, 4RW.

The monthly general meeting for Jan. of the VKS Division was held in the new club-rooms to a very representative gathering of members and visitors, and the guest speaker was Mr. C. Pearson (SPE), who discussed "Transistors and their applications." Very

Very little business of note came up for discussion, although the suggestion that VKS should run a contest to help publicize their cause and attract new members was discussed. A year hence a couple of dozen of the members and the matter was put forward for a month or so to check on the general membership reaction to the idea. The meeting closed at 11 p.m. and the members were escorted to the bus. The members departed for their couches of repose, or otherwise, well pleased with the night's entertainment, and more than pleased with the appointments and general facilities of the club. Come along some time and see for yourselves.

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Col SKV from Oakleigh. I had quite a chat with these two gentlemen and despite the fact of being VK3s, they turned out to be extra good. Col is a brother of the late Anderson (ex SMA) of Cheltenham, but probably better known from his association with Air Training Corps. Col is a brother of Maurice has passed on of course but was always an ambassador for VK3s, and a good representative to boot.

After a SMOJ back in the R.N.'s department after a SMOJ at W.R.E. Rob has certainly been around in his time and without any doubt is a second and a goodly store of knowledge in all matters radio. Always willing and eager to help in any way, he would make a good council member and someone would begin to wonder about the other two directors.

Altho SLQ noticed at the meeting with quite a discolouration below his right eye, which led me to ask him if the verandah post had recently fallen down. He did not seem to be very anxious to answer my kind enquiry, but finally broke down and admitted that the discolouration was due to a r.f. burn! Could he possibly have been having a lead of me??

Noticed our estimable chairman, John SJZ, anxiously glancing across the room several times during the meeting. He has a fine, a crown on his aristocratic looking brow. With his added db. level to his hearing, he apparently could catch the mumble-mumble from the other end of the room. I think he knew more about translators than did the lecturer and was not interested enough to listen. I think he was correct. I think I have been right on the job. Next time I answer you back I'll have to whisper.

Talking of mumbling during the lecture, I noticed the lecturer, who was a very old old yip to each other using the deaf and dumb sign language. It's a long time since I used that method myself, and am somewhat rusty now. I think I understand it, but I feel that I have missed something in my journey on this earth!

John SJZ was been scotching hither and thither around the VK3 countryside over the Xmas break and if all can be believed, has been working stations galore on his portable set-up. The list of stations has been long. I think I have the "Who's Who" of Amateur Radio, and the information he has gleaned on his trip would be a good job for any of the staff any day he wants one. The salary?—Oh a couple of those thoughts that Ye old, throws around the globe about the year 2000. Eric SVM and family have been over in VK3 on one of their periodical visits, and of course have been seen in the company of Jim SFO and his family. This friendship was formed many years ago, when the two families (four hour QSOs, etc.) and he did not lapid through the years. Eric's XYL closed the distinction of being an ex VK3, she is the sister of Len (ex SVM) from Crystal Brook way, who incidentally, if my eye can be trusted, is on the way back to the UK. Good news, Len, the more the merrier.

Received the usual seasonal letter from Arch XKA, a refugee from Norfolk. Lord Howe Islands. He tells me that the notoriety handed out to him since those DX-petitions have been entered, has certainly not helped him. He tells me that it has not changed him from the quiet unassuming ambassador for c.w. that he has always been. Quiet and unassuming. I think he is right. He writes didn't lapse in a helpless mess as he wrote that. Nevertheless, I will grant him the title of ambassador for c.w. as he has been a good c.w. in VK3 than any three a.b. converts put together, and seriously, who would want to put three a.b. converts together! Don't answer him.

Ken SIM reported as passing through Lucinda after the Xmas period, as was Howard XKA, but neither had as yet returned. Only Norfolk Island natives with bones through their noses, although they did report a Lord Howe Island native with a nose through his bone!

Rumour has it that John SJW has been heard on 12 m. with some strong c.w. signals. If that is true, it is a very good sign with open arms after such a long absence.

Vic SJH also heard from Nhill at times over Xmas, although at the time heard he was in the car with his pouring rain, his spirit unbent and unbroken.

Bob SBO still recovering from the effects of the before-mentioned wind, which nearly uprooted VK3 recently. He lost all of his aeriels, beams, etc., but it will take more time to this to keep a good man down. What say Bob? (Gosh, I don't know, but I think he would manage to get any more details, but sincerely hope that Carl will remember to wear a hat when he goes to the beach, so that the drovers know who are the sheep?)

well? Dave SDS, my favourite Scotchman, still in the pink, even though he throws New Year parties that start at midnight and carry on until very small hours of the morning. Such frivolity.

Reports are still filtering through of breaking and entering of shacks, and once again apparently it seems to be all these of the gang with outside shacks to keep them under lock and key, or better still, fix some SMOJ on the shack and they will catch this persistent offender. He is pretty shrewd, he knows his mark and only takes what he wants, so be warned fellows.

Talking of Xmas, I heard a warty the other day with Lionel SLB and every now and then there would be a bang come over the air that would have done justice to royal salute. I stuck around long enough to find out the answer, and it appears that in Jack's shack is a big tin with a bounty of loose-funnels on top of it, and every now and then it contracts or expands and everything in the shack, including Jack, jumps up in the air about six feet or so. I scared Jack and he is half a wake up to it, so what would it do to a would-be-burglar?

By the way, John SJZ has been wrongly labelled in these notes for the past two or three months with the call sign of SLM. I thought he acted cool toward me at a couple of meetings, but I was wrong. He is not. Now I am sure that I could not have made the mistake, I am equally sure that the Editor will not make the mistake. I am sure that the publisher of unwanted chassis is likely to accept the blame, so once again, I will have to be always right, but I am never wrong! (Two Whites don't make a Wong.—Ed.)

The SWI session on 40 m. has been letting us down a trifle lately. Reception conditions have not been the best on this band and last Sunday, to make matters worse, there was no 40 m. re-broadcast available. One good thing about the time of the day is that the bands makes everybody appreciate the voluntary efforts of those responsible and these efforts certainly deserve appreciation. I have been tempted to forget to write these notes for one month, just to see what appreciation I would get. Only the thought of the readers of this magazine, and happiness from all concerned deters me.

Geoff S2CQ is now the VKS Federal Council, and will represent us at the coming Convention in Perth. He is a Ph.D. who represented us in Perth last year, and of course will be the new Divisional President as well as being a 1st Vice.

This month will also see a new Council being voted for and my spies are hinting at some surprise nominations. This is all to the good, and I hope the Council of Division won't get very far and new, enthusiastic and keen members are always wanted.

Just when I was getting all enthusiastic and handing out bouquets to VK3 on the quality and quantity of their Divisional notes, what happens? Apparently overcome by modesty and shyness, they have suddenly handed out, the scribble took off on the pad, bike. Come out, come out, wherever you are, I did not mean it, personally I think the notes were on the nose. How? What? Feel any better?

Radio funny? Joe SJO made up a portable rig for the Boys' Club, and I think it with him on his aforementioned trip round VK3. It outperformed his home rig to such an extent that the Boys' Club could be unlucky.

Jack SLR is now a gentleman of leisure, with nothing to do and all day to do it. He resigned from the F.M.O. at the start of this year and tells me that he intends to enjoy life and relax in the sun. He has not had the best of health since the war, and I can't say I blame him for giving the "game" away. To be truthful, I am quite jealous. Good luck to you OM.

Heard a good 24HM in contact with Ken SIM) the other evening and believe it or not, Ken was taking credit for the rain that was in the air. I think he was right, apparently Wentworth. It appears that on the Xmas card he had received from the 24HM family were written the words "Please send me the rain". Ken was sure that the 24HM points had fallen for them. Ken was sitting back and endeavouring to take all the credit.

Managed to get on to the tail end of a QSO between Frank SMZ and Carl SSS and gathered that Carl was off somewhere or other. Gosh, I don't know, but I think he would manage to get any more details, but sincerely hope that Carl will remember to wear a hat when he goes to the beach, so that the drovers know who are the sheep?

Cec. S3Z heard on 7 Mc. for a short period the other night, very short in fact, and whether he succeeded in getting into the other side. Rumour has it that he is preparing to see the country on an extended European tour. Want someone to carry him?

I suggested to our worthy President (John SJZ) that it would be a good idea if the members of the Council, or at least the secretary, should be held by the operator of SWI (Clive). Frequency checks, if required, have always been given by SWI in the past and they are always a little late. Then Clive will be happy to oblige, I hope. Pass the buck, Pansy, they call me!

Never hear anything of Brian S7Q these days, but I wonder where he is. He was taken off the air, but of course that was when he was a single young man and had plenty of time. He now officiates mainly at the nearest place. He has got to hearing him on the air was last Sunday, when out of the transmission of Reg S8K came a CQ on a motor car horn, and Reg commented, "That was Brian S7Q, he always toots a CQ on the horn as he goes past."

Ken SJZ going great guns portable from Port Elliott over the Xmas and New Year break, and puts out a remarkable signal with the low power at his disposal.

I notice with a sense of mingling, the increasing tendency on the part of some contributors to this magazine to belittle the art of a.s.b. ahem, and feel that apparently they are not working out. I think something new must automatically be inferior to the existing art of telephony. In an endeavour to make a jump out of the ordinary, I have got to be a.s.b. I would like to point out that I am at the moment idly thumbing through a technical book published around 1935, and on page 17 read with some surprise, I quote "In March 26th, 1935, commercial two-way radio telephone conversation was carried on the 100 m. band, and the use of a carrier wave of transmitter used was termed a single side-band eliminated-carrier transmitter." Well! What about that? Something new eh? Anything new eh? I think it is a good idea. No more disparaging remarks about duck talk please. Gosh! Incidentally, I never read the book, but I am sure it is a good one, and use it about anybody advocating a.s.b. Gercha.

When I was a member of Council we used to sit tips and biscuits at the end of the Council meeting, and I think it is a good idea for home. Just what they slip these days I would not know, but my spy, who is planted right in the middle of Council, tells me that the Elizabethan returned to the Council. Tubby SNO, left the lights on his car burning merrily away at the last meeting, and then he was to be pulled down by the Council, and as far as is known arrived home safely. The chairman (John SJZ) went one better, he managed to get completely lost and arrived home in the early hours of the morning, crept in the back door and retired for his beauty sleep. Next morning the family rose early to go to town for some, and I think only to find the lights on the car burning dimly and the battery flat. We will draw a lesson from this, the superior of the Council, but this I can say with freedom, the chairman of the VK3 Division was ruled out of order early in the piece and that lump on the top of his head is a very good one. I think he bought him one when he rose on a point of order! It never even marked the gavel.

It would appear that my lone fight for the poor man's vote has been a failure. At least office is at last paying dividends. Keith SLH informed me at the meeting, with an unassuming air, that he resigned. At least he had paid his licence fee, and the joker never said, "Boo." Well, we will see, I must trust that you may miss him. I will send you now for next month's magazine and read either about the victory or the defeat.

Received thousands and thousands, well, hundreds and hundreds, of letters. I can't have it my own way, several letters over Xmas referring to my humble efforts in this magazine. I am sure that you will be saying more, but thanks a lot, I enjoy doing it too, it feeds my ego! I even received a telegram from Max S4RZ saying, "Merry Xmas and good luck to you. I wish you good luck to be followed by 14 VK3 contacts made from me."

TASMANIA

The v.h.f. bands have really hit the headlines in January. It all began when David ZTAI and Reg ZTAA worked a VK3 on 1 m. and then ZTAI tried to work a VK3 on 2 m. and to be followed by 14 VK3 contacts made from me.

Hobart by Winston SZWH, formerly 7ZAP, who will again be resident in Hobart I believe. This is a chance to show that the popularizing these bands can provide some most unexpected results. It is also good to learn that 7ZEC, from Evansdale, is able to get through to Hobart readily on 2 mcs.

John TJP has erected a GSRV antenna and is now trying it out on all bands, after one or two weeks of trial. The results so far have now received their crystals to land them on 144.1 Mc. and the chin-wagging which now goes on all on the same frequency must be heard to be believed.

Remember the Annual Dinner and General Meeting of the Institute. The date to keep available is Saturday, 23rd March. Remember the R.L. and the mother of all, and make it the usual wonderful event.

Remember, also, the elections for the new Council. If you are a full member be sure to vote so that the Council of your choice directs our Division's affairs.

At our Feb. meeting, John 7ZOO delivered a very interesting lecture on pulse modulation, which convinced those present that such a form of modulation on v.h.f. had many points to recommend it, despite the width of the signal. It was very good to see one of our newer members delivering the lecture so ably.

Amongst the new members elected at this meeting was Cross 7CWO, or should I say, re-elected. We welcome you back to the fold and hope to see you along often, as well as our other new members. The 7CWO has installed his mobile 2 mcs gear in his recently acquired car and is having lots of fun running his battery powered rig frequently short intervals. Geoff 7ZAB is back at work and feeling and looking a lot better after his recent illness.

Our next Federal Convention will soon be upon us and our Feb. meeting passed several items to be included in the Agenda. It was first class to have two items forwarded from the Northern Zone, and we hope for further examples from the other Zones of interest and activity such as this.

Conditions on the lower frequencies have been variable during Jan. I personally worked a dozen or so Ws during the month on 3.5 Mc., as well as VIs and JAs, but on other occasions the same band was virtually dead with considerable QRN present. 73, 7ZZ.

NORTH WESTERN ZONE

Terribly sorry for missing the last edition, but an honest mistake was made regarding the publication date.

The first meeting of the year was held on Tuesday and a good attendance was present. Many old faces, such as TTT were there and we were pleased to welcome visitors, Brian Barnes, Ernest O'Leary, and John Boswell. Much business was discussed, including suggested items for the Federal Council agenda, and a future tin hunt, a possible date being 10th March. The controversial letter seems to have been laid to rest at last. No ill feeling has resulted and much has been achieved by it.

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The meeting was followed by a fine color slide show by courtesy of 7SP and 7MX. Max, having recently returned from VK3 and VK3, favored us with many colorful mainland shots. Rumor has it that 7MS will soon be replacing his queer quid with something special. Unfortunately no more data is available. David seemed in uncommon good humour Tuesday night, although he did seem to be suffering from that now-common ailment, the square-eye disease. I see 7MX has recently acquired a phased-array antenna—and not on 2 mcs! Some v.h.f. is coming through on 2 mcs and beyond, and 7AI seems to be doing fine DX with his "duck-talker". Athol, although officially cleared by the R.L., has been unjustly accused of T.V. The T.V. Committee have the matter in hand and will no doubt clear the matter up. Sid 7TF has a nice black box of auto-tune tricks. No doubt, we will soon hear this competition-winner on the air. Keep at the studies Basil, Frank and Bruce. The next exam, I think, is in April. 73, 7ZBH.

HAMADS

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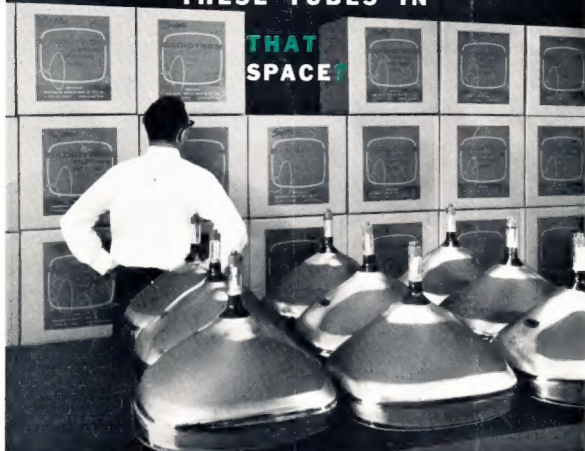
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